

Bibliotheca Herpetologica

A Journal of the History and Bibliography of Herpetology



VOL. 16

International Society for the History and Bibliography of Herpetology

THE SOCIETY

Mission. The ISHBH aims to promote research related to historical herpetology. The Society is devoted to stimulating and advancing the study of the history of the herpetological discipline and its bibliography. We bring together individuals for whom the history and bibliography of herpetology are appealing. We promote the knowledge of these and related topics among members and the general public. The Society was established in 1998. Membership is open to anyone who shares the aims of the Society.

Activities. The society members meet every year, usually in connection with other general herpetological meetings with international participation. Activities include visits to private and public libraries, museums and other places with historical links to the discipline. We organize workshops and sessions in the fields that form parts of larger national or international meetings on herpetology. Our shared lunches adjacent to the yearly business meetings have become popular among members and guests. The Society works to facilitate both formal and informal contacts among members.

Journal. The ISHBH publishes the journal *Bibliotheca Herpetologica*, which is the central pillar of the Society. It contains articles, essays, bibliographies and news of people and events in our field and is a peer-reviewed. The many important contributions make the publication a vital source for bibliographers, historians and taxonomists alike but at the same time the papers are by and large appealing to the layperson in the field.

Beginning with volume 14, ISHBH will adopt an open access publication model. Articles in *Bibliotheca Herpetologica* will be available online as soon as they receive final editorial approval. At the end of the year a hard copy version of *Bibliotheca Herpetologica*, containing all articles published that year, will be printed and distributed to current members.

The name of the journal, up to volume 5(1), was: *International Society for the History and Bibliography of Herpetology Newsletter and Bulletin*.

Membership. The membership fees cover the calendar year. ISHBH membership categories are: Corresponding Membership US\$25/year (open access only plus all other membership benefits), Regular Membership US\$50/year, Institutional Memberships US\$75/year, and Sponsoring US\$75/year. Note that Life Members will retain their status. However, we are no longer offering new Life Memberships. To Join, go to our website <http://www.ishbh.com> and click on the Membership tab.

OFFICERS

Executive Committee Officers:

Chairperson: Aaron Bauer (USA)

Vice-Chairperson: Chris Bell (USA)

Treasurer: Eric Hilton (USA)

Secretary: John Murphy (USA)

Editor: Breck Bartholomew (USA)

Managing Editor & Webmaster: Ralph Tramontano (USA)

Member Without Portfolio: Luis Ceríaco (Portugal)

Other Officers:

Patron of the ISHBH: Ronald Javitch (Canada)

www.ishbh.com

All articles on pp. 1-117 copyrighted and version of record originally published online in 2022 (exact publication date at bottom of first page of each contribution). Hardcopy published December 2022.

FROM THE CHAIRMAN

...

Aaron M. Bauer, Chairman
Villanova, Pennsylvania, USA

FROM THE EDITOR

....

Breck Bartholomew, Editor
Salt Lake City, Utah, USA

ABOUT THE COVER

Menagerie with snake-tamer by Paul Friedrich Meyerheim (1842–1915). Painted in 1864. Image provided compliments of the Stadtmuseum Berlin. Not available for reproduction, duplication, or transfer. Reproduction: Hans-Joachim Bartsch. For more details see the article by René E. Honegger and Daniel G. Blackburn on p. 94.



Flânerie or Flimflammy? — The Urban Myth of the Flâneur and Turtle-Walking

Matthew P. Bettelheim

5500 Pennsylvania Blvd, Concord, California 94521 USA, blackfish@nasw.org

Toward the end of the twentieth century, German philosopher, cultural critic, literary scholar, and essayist Walter Benjamin (1892–1940) rose to prominence in first Europe, and then the Americas, for his writings about aesthetic theory, literary criticism, and historical materialism (Osborne and Charles 2021). Benjamin was also known for his essays on French poet Charles Baudelaire, German writer Franz Kafka, and French novelist Marcel Proust. In the last of his projects, Benjamin assembled what later amounted to over a thousand printed pages of fragmentary notes about city life in nineteenth century Paris, France, that would become his unfinished *Arcades Project* (*Das Passagen-werk*), which remained unpublished for more than 40 years after his death. Benjamin's opus on urban Parisian culture not only paid special attention to the *Passages couverts de Paris*, Paris' renowned glass roof-covered, gaslit passages that composed the city's extensive shopping arcades (Solibakke 2009), but also those that dwelled there. In his writing, Benjamin gave new flesh to "*flânerie*", the art of walking. But perhaps more importantly, in what could easily have been dismissed as a footnote, he also refashioned a character known as the "*flâneur*". The flâneur was an idler who became personified as a young man walking about the arcades of Paris with a turtle or tortoise on a leash to set his pace. Inexplicably, Benjamin's turtle-walking flâneur became an indelible motif in art and literature, making a splash whose ripples are still felt today.

One prominent example of the flâneur's emblematic permanence can be found in the art world. On December 12, 2004, Ottoman artist Osman Hamdi Bey's 1906 painting "The Tortoise Trainer" (oil on canvas; 221.5 x 120 cm) was sold at auction for 5 trillion Turkish lira (\$3,793,500 USD, ca. 3 M €), setting a record at that time as the highest price paid for a painting by a Turkish artist. While the inspiration and source material for this painting is debated to this day, one long trot out and unflagging interpretation in the search for hidden meaning and symbolism in his work suggests that Osman Hamdi may have been referencing Benjamin's turtle-walking flâneur (see Bettelheim and Taskavak 2006, Bettelheim 2020). This interpretation persists to this day despite the absence of a leash in the painting (not to mention the inconsistent chronology; more on that later), hinging instead on metaphor alone.

Even today, the turtle-walking flâneur regularly appears in works of fiction (see Caparrós 2008; p 202, Dey 2008; p 139) and non-fiction (see Cooke 1990; p 15, Solnit 2000;

p 199–200, Federle 2001; p 41, Hodgkinson 2007; p 101, Kendall 2008; p 178, Rhodes 2010; pp 229–230, Rodriguez and Rink 2011; p 106, Coverley 2012; p 175), the arts (Milne 2017; 120–122, Jönsson 2019; 53–54, Roddier 2020; 125–140), fashion (see Anonymous 1950; p 3), and luxury items such as the winery Flâneur Wines (see www.flaneurwines.com) which features a turtle-walking flâneur on its wine labels or the boutique hotel The Tortue, Hamburg (Germany) that celebrates "the delightful art of living, never hurrying!" with a statue of a tortoise in the lobby to greet guests (see www.tortue.de).

Under increasing scrutiny, however, some historians have begun to question whether the "flâneur" ever existed. If the flâneur is fiction, might so be his turtle on a leash? It is only through close examination that we can begin to unravel the urban myth of turtle walking to determine whether Benjamin's man of the streets with a turtle on leash was more documentation or mere fabrication.

THE FLÂNEUR, DEFINED

What, then, is a flâneur? The flâneur first set foot on the streets of Paris in the early 1800s, referring in popular usage at that time to a lazybones, a deviant, a loafer, or an idler. But the vulgar connotations soon gave way to a more bourgeois interpretation that gained a life of its own (Ferguson 1994). By the 1830s and 1840s, the flâneur had become layered like an onion, itself a symbol of modernity and urbanity; the artist and the poet; a figure marked by grandeur and decadence; and overall emblematic of nineteenth century Paris (Ferguson 1994). The flâneur's respectable dress code called for a black frock coat, top hat, and in hand either a cigar, walking cane, or umbrella. The haunts of the flâneur were the city's boulevards, arcades, parks, restaurants, and cafes (Gluck 2003) (Figs. 1 and 2). The flâneur was an observer and a spectator, popular and avant-garde, heroic and ironic, nostalgic and introspective:

The *flâneur* is the individual sovereign of the order of things who, as the poet or as the artist, is able to transform faces and things so that they have only that meaning which he attributes to them... The *flâneur* is the secret spectator of the spectacle of the spaces and places of the city... going about the city in order to find the things which will occupy his gaze and thus complete his other-



Fig. 1. A lithograph featuring two “flâneurs” as portrayed in Charles Philippon’s *Les ridicules* series (ca. 1825). The flâneur was both an idler and an artist, a man of the crowd and an aristocrat. (Courtesy of the Musée Carnavalet, Histoire de Paris [CC0 1.0 Universal])

wise incomplete identity... Because the *flâneur* is fundamentally a figure who can only be known through the activities of *flânerie*, a certain mystery is intrinsic to his identity (Tester 1994).

It was the mid-century flâneur that captured so many imaginations with Benjamin’s inclusion of a turtle at the end a leash. Benjamin’s flâneur was inspired by his reading and critique of Charles Baudelaire, and Baudelaire was inspired in turn by the work of Edgar Allan Poe. Without labeling him as such, in Poe’s 1840 short story “The Man of the Crowd,” the nameless narrator becomes the embodiment of the flâneur as he tails an old man for a night from a coffee shop into the winding streets of London:

I felt singularly aroused, startled, fascinated. “How wild a history,” I said to myself, “is written within that bosom!” Then came a craving desire to keep the man in view—to know more of him. Hurriedly putting on an overcoat, and seizing my hat and cane,



Fig. 2. This pencil drawing of *le flâneur* (the idler) (1855) by Paul Gavarni depicts the typical flâneur in costume: a black frock coat, top hat, and walking cane. Hands in pocket, the idler has nothing but time on his hands to contemplate world passing by. (Courtesy of the Maroni Collection, Boston Public Library)

I made my way into the street, and pushed through the crowd... and followed him closely, yet cautiously, so as not to attract his attention... I resolved to follow the stranger whithersoever he should go (Poe 1840).

Baudelaire, fixated on “the powerful pen” of Poe and his man of the crowd, fixed the flâneur further in reader’s imaginations in his famous 1863 essay, “*Le Peintre de la Vie moderne*” (“The Painter of Modern Life”), in which he rebranded the flâneur a “passionate observer” blessed with the “genius of infancy,” characteristics best described today as curiosity (Baudelaire 1863a,b,c,d):

The crowd is his domain, as the air is that of the birds, and the water the fishes. His passion, and profession, is to espouse the crowd. For the perfect flâneur, for the passionate observer, it is

an immense joy to take up one's dwelling among the multitude, amidst undulation, movement, the fugitive, the infinite. To be absent from home and yet feel oneself everywhere at home; to view the world, to be at the heart of the world, and yet hidden from the world, such are some of the least pleasures of those independent spirits, passionate and impartial, that language can only inadequately define. The spectator is a prince who rejoices everywhere in his incognito. The lover of life makes the world his family (Baudelaire 1863a,b,c,d)).

The mid-century flâneur's passionate spectatorship was veiled, though, behind a mask of neutral objectivity; the flâneur was disengaged, disinterested, dispassionate, anonymous, and unremarkable (Ferguson 1994). This was the height of the flâneur, the "perambulating Panopticon," the leisured dandy "protesting with his sometimes feigned idleness the bourgeois work ethic and clinging to the remnants of an aristocratic aura" (Mazlish 1994), as well as "a gastronome, a connoisseur" and "aristocratic (at least in spirit)" (Shaya 2004). The flâneur was the "artist, writer, journalist, intellectual, social scientist or detective," but also "'the artist who doesn't paint,' 'the writer who will one day write a book'" (Featherstone 1998).

By the late 1870s, however, the flâneur had again lost its lacquer, shedding most of its ties with the idea of the artist-poet adrift in the bustling city streets to reemerge in the private sphere of the indoors and the department store (Ferguson 1994). The late flâneur—falling victim to mercantile capitalism, commodification, and the automobile—lost its distinction and decadence and was once again ascribed an aimless idler: immobile, estranged, alienated, and detached (Ferguson 1994). The flâneur had fallen out of fashion.

Despite the rise and fall of the *flâneur*, the pointed nuances that defined the figure became homogenized with the passing of time. In the 1872 edition of Pierre Larousse's *Grand Dictionnaire Universel du XIXe Siècle*, the editors' long-winded entry for flâneur carried on thusly:

Le flâneur est une variété du paresseux; à ce titre, les lecteurs du Grand Dictionnaire n'ont pas besoin que nous leur exposions la répugnance que nous inspire ce type inutile qui encombre les rues des grandes villes et y gêne la circulation. Toutefois, il y a dans la paresse du flâneur un côté original, artistique... Il y a mille formes et mille causes de flânerie dans Paris... et cette ville où règne une vie, une circulation, une activité sans égales, est aussi, par un singulier contraste, celle où l'on trouve le plus d'oisifs, de paresseux et de badauds... A côté de ce flâneur inconscient, dans l'esprit duquel tous les objets viennent se réfléchir comme dans un miroir et sans y laisser plus de traces, il y a le flâneur intelligent, pour qui la promenade sans but, l'inaction apparente, est un repos nécessaire, une détente des facultés, après le travail.

The flâneur is a variety of the lazy; as such, the readers of the Grand Dictionnaire do not need us to explain to them the repugnance we feel for this useless guy who clutters the streets of big cities and hinders traffic. However, there is an original,

artistic side to the laziness of the flâneur... There are a thousand forms and a thousand causes of flânerie through Paris... and this city where reigns a life, a circulation, an activity without equal, is also, by a singular contrast, the one where we find the most idlers, lazy and onlookers... Beside this unconscious flâneur, in whose mind all objects come to reflect as in a mirror and without leaving more traces, there is the intelligent flâneur, for whom the aimless walk, inaction apparent, is a necessary rest, a relaxation of faculties, after work (Larousse 1872).

Carrying on loquaciously in a dictionary entry that approaches half a page, the editors went on to describe the several species of flâneur: "*les flâneurs du boulevard*" (the boulevard flâneurs), "*le flâneur des jardins publics*" (the public garden flâneurs), "*le flâneur des quais*" (the flâneur of quays). These varieties of artists, poets, and philosophers haunted the streets and gardens and docks in meditative silence to allow ideas to ripen, develop, and grow (Larousse 1872).

By 1939, Webster's *New International Dictionary of the English Language* (2nd ed.) defined a flâneur to be "One who strolls aimlessly; hence, an intellectual trifler" and flânerie as "strolling; hence, aimlessness; idleness; as, intellectual *flânerie*" (Nielson et al. 1939). With age, the flâneur had again become synonymous with Paris, intellectual idleness, the sidewalk botanizer, the artist-poet, the well-dressed dandy.

Half a century or more after the fall of the *flâneur*, when Benjamin revisited the elusive figure to pen his 1940 essay "On Some Motifs in Baudelaire," he had his own take on the flâneur:

Baudelaire saw fit to equate the man of the crowd, whom Poe's narrator follows through the length and breadth of nocturnal London, with the *flâneur*. It is hard to accept this view. The man of the crowd is no *flâneur*. In him, composure has given way to manic behavior. Hence he exemplifies, rather, what had to become of the flâneur once he was deprived of the milieu to which he belonged... the *flâneur* demand[s] elbowroom and [is] unwilling to forgo the life of a gentleman of leisure. Let the many attend to their daily affairs; the man of leisure can indulge in the perambulations of the *flâneur* only if as such he is already out of place (Benjamin 1955).

One of Benjamin's later essays, "*Der Flâneur*," written in 1938 before his death and published posthumously in 1967 (also, later published as part of the essay, "The Paris of the Second Empire in Baudelaire"), marks what art professor Tom McDonough has described as "nothing less than the second coming of the flâneur" (McDonough 2002). This resurgence of interest in Benjamin and the flâneur was due, in no small part, to a 1968 profile by Hannah Arendt in *The New Yorker* magazine (see Arendt 2006), which figured the flâneur as the key to understanding Benjamin's work (McDonough 2002).

In Benjamin's section devoted to the flâneur in "The Paris of the Second Empire in Baudelaire," where he memorably

described the flâneur as one “who goes botanizing on the asphalt” (Benjamin 2006), he recast the flâneur as a gentleman detective (Frisby 1994, Shields 1994, McDonough 2002, Benjamin 2006). It was at this time that flânerie was “tied to the emergence of the popular genre of the detective novel and also to the literary practice... of journalists” (Shields 1994). “If the flâneur is thus turned into an unwilling detective, it does him a lot of good socially, for it legitimates his idleness,” Benjamin explains (Benjamin 2006).

In trying to understand the etymology of the word flâneur, the only constant is change. In his introduction to *The Flâneur*, sociologist Keith Tester’s treatise of essays on the topic of flânerie, Tester cautions that the “precise meaning and significance of flânerie remains more than a little elusive” (Tester 1994):

... definitions are at best difficult and, at worst, a contradiction of what the *flâneur* means. In himself, the *flâneur* is, in fact, a very obscure thing. And therefore, he cannot be defined in himself as very much more than a tautology (the *flâneur* is the man who indulges in *flânerie*; *flânerie* is the activity of the *flâneur*).

Simply put: a flâneur is as a flâneur does.

PASSAGENS—WRITTEN WALKWAYS

One could wax poetic for pages on the many nuanced interpretations of the flâneur and flânerie (and clearly many literary critics do), but the genesis of the flâneur figure is most important here to help establish the historical backdrop and cultural milieu in which Benjamin introduces the flâneur’s notable turtle companion.

Benjamin’s first mention of a flâneur walking a turtle in the Parisian arcades appears in the fragmentary notes to his unfinished work, the *Arcades Project*, and again later in one of several essays that arose from those copious notes, “On Some Motifs in Baudelaire.”

In 1839 it was considered elegant to take a tortoise out walking. This gives us an idea of the tempo of flânerie in the arcades ([M3,8]; Benjamin 1999).

Around 1840 it was briefly fashionable to take turtles for a walk in the arcades. The *flâneurs* liked to have the turtles set the pace for them. If they had had their way, progress would have been obligated to accommodate itself to this pace (Note 6; Benjamin 1955).

Note that Benjamin specifies the reptile in question to be a “tortoise” in the written notes for the *Arcades Project*, but a “turtle” in his published essays. An interesting distinction, but likely immaterial since the two words appear to have been so often interchanged by experts.

Benjamin’s *Arcades Project* has been described by one researcher as textual “montages” and “fragments” whose epis-

temological range and “failure to limit his data” overwhelms readers with “the spoils of his research,” noting that some have called the *Arcades Project* a failure for its incompleteness (Solibakke 2009). Sieburth describes it as “a massive fragment or monumental ruin meticulously constructed over the course of thirteen years” that “appeared to be governed by a law of infinite expansibility” (Sieburth 1989). Truth be told, Benjamin had undertaken a Sisyphean task when he set out to methodically record every detail of Paris; from the beginning, it was a project without end. The montages and fragments, assembled between 1927 and 1940 (Ferris 2009), were excerpted from 850 secondary sources, in addition to original commentaries, observations, and glosses (“footnotes”) (Solibakke 2009) amounting to over a quarter of a million words (Sieburth 1989).

The *Arcades Project* was, in essence, a series of loose sheets of paper, organized into sections under overarching subjects Benjamin referred to as “convolutes” (roughly equivalent to “files” or “folders” in English) which became the umbrella for any number of notes on that subject (Benjamin 1999).

For example, Benjamin’s note on tortoises, “M3,8” was filed under convolute M, “The Flâneur,” and presented in a smaller (rather than a larger) typeface, a notation style he devised that indicated a factual “citation” (written in either French or German) rather than a personal “reflection” (written in his native German). Unfortunately (especially for future fact-checkers), each convolute was a quotation or citation removed from its context and then casually assigned an order irrespective to the text that bookended it (Benjamin 1999).

Point in case: of the convolutes that bookend M3,8, Convolute M3,7 is a citation that quotes a passage about the astral gaslights of Passage Colbert; convolute M3,9 is a reflection on a quote about the day Paris becomes dethroned by cliché (Benjamin 1999). To this day, no one is certain whether Benjamin intended the final product to be a series of montages and fragments (as it was published posthumously), or assembled into a more discursive form (Ferris 2008).

Sieburth explains that the *Arcades Projects* was an attempt by Benjamin to historicize the “mythic energies latent in the arcades... that is, of reading cultural archetypes... not as timeless essences but as the products of concrete social and economic relations.” This reversal of “myth into history” can be equated to moving from “sleep to waking” (1988). With every convolute Benjamin recorded, it was another myth made real. In some ways, the task Benjamin set for himself was not unlike the Brothers Grimm and their collection of German-European folk tales from an oral to written form, except that Benjamin was collecting the minutiae of the Parisian arcades.

Comparative literature professor David Ferris points out that it isn’t uncommon for Benjamin’s work to be taken out of context. A “small selection of his works” tends to be cited (notably, the *Arcades Project*), and there is a “tendency to extract those sentences and phrases that lend themselves to citation as authoritative insights” (Ferris 2008). Such a statement could just as well have been made about Benjamin’s tortoise convolute.

To wit, Benjamin's mention of turtles in the essay "On Some Motifs in Baudelaire" appears as a footnote to the following main passage text: "Arcades where the *flâneur* would not be exposed to the sight of carriages that did not recognize pedestrians as rivals were enjoying undiminished popularity⁶" (Benjamin 1955). The turtles were an aside, not a defining characteristic of the *flâneur* worthy of mention in the running text. Nevertheless, it is the turtle that left a lasting impression on readers.

OFT CITED, RARELY SEEN

The *Arcades Project* was assembled between 1927 and Benjamin's death in 1940, while "On Some Motifs in Baudelaire" was published in 1940. These dates reflect the passage of time ranging from as little as 87 to over 100 years between when the purportedly fleeting practice of turtle-walking took place (1839–1840) and when Benjamin recorded it. In all this time, Benjamin is the first and only historian to document this practice. And he did so—as, admittedly, was his style—in a footnote.

In *Wanderlust—A History of Walking*, writer and historian Rebecca Solnit questions the primordial basis for the *flâneur*, especially one with a turtle, explaining:

The only problem with the *flâneur* is that he did not exist, except as a type, an ideal, and a character in literature... no literary detective has found and named an actual individual who took a tortoise on a walk, and all who refer to this practice use Benjamin as their source (Solnit 2000).

Shields argues that the *flâneur* is imaginary or, as he calls it, literary "myth" or "gloss" — "a mythological ideal-type found more in discourse than in everyday life" (Shields 1994):

Flânerie was therefore always as much mythic as it was actual. It has something of the quality of oral tradition and bizarre urban myth... In truth, it must be acknowledged that nineteenth-century visitors and travelogues do not appear to reference *flânerie* other than as an urban myth (Shields 1994).

Throughout Benjamin's notes, for example, he only afforded the status of *flâneur* to one living person: German fantasy and gothic horror artist E. T. A. (Ernst Theodor Amadeus) Hoffman. The *flâneur* and *flânerie* were fundamentally fictional flourishes that thrived between the pages of novels and thus, in the minds and imaginations of authors and their readers (Shields 1994); the true *flâneur*, if he existed, was a rare bird indeed (Fig. 3).

According to Goebel, "Benjamin's *flâneur* is less a historical figure or individual subject than a perspectival medium, reading the collective memory of the city... the *flâneur* functions as the translator of the silent language of topographic sites into the conceptual language of the modern urbanite" (Goebel 2009).



Figure 2 The definitive dandy.

Fig. 3. "The definitive dandy" (1990) by Penni Bestic, as featured in Phillip Nicholas Cooke's *Back to the Future: Modernity, post-modernity and locality*, is one of the few, albeit modern, published illustrations of a *flâneur* walking a turtle through the streets of Paris. The curious additions of a turtle ribbon (or purse ??), muff, and lady's hat — not to mention the leashed turtle's own top hat — are clearly artistic flourishes. To date, no historical representations of a *flâneur* and his turtle, in art or in photograph, are known to exist.

Benjamin biographer Michael Jennings confirms that Benjamin's notes contain no source material for the tortoise convolute (Jennings, Michael W. E-mail to the author. 5 Jan. 2021). For all intents and purposes, Benjamin was the originator of the turtle-walking *flâneur*. That's not to say that Benjamin fabricated this practice; if anything, Benjamin was the quintessential *flâneur* himself, forever observing and recording the milieu of Paris on scraps of paper. But to the best of our knowledge, before Benjamin, there was no turtle of which to speak.

CONSIDER THE LOBSTER

Faux or no, the one animal-on-a-leash anecdote that is paired unfailingly with the turtle-walking *flâneur* concerns French

author Gérard de Nerval, who was said to take his pet lobster “Thibault” for a walk on a blue silk ribbon in the gardens of the Palais-Royal in Paris sometime before 1875 (Holmes 1986, Horton 2008). Nerval had rescued Thibault from some lobster nets during a seaside visit to the town of La Rochelle. Often and easily written off as a fashionable show of eccentricity or flamboyance, or as an act to make a name for himself or shock the middle-class, the investigative work of Richard Holmes suggests that, despite any deliberate myth-making surrounding Nerval, his lobster-leash street performance has been misinterpreted (Holmes 1986).

According to Nerval’s friend Théophile Gautier, Nerval was not a showman but rather a retiring and secretive person, instead obsessed with symbolism and “the extraordinary power of his inner imaginative life.” Some have even advanced that Nerval’s fascination with the lobster spilled over from his exploration into the occult and Tarot (see Holmes 1986, Dery 2003). Whatever the reason, Nerval thought it was a “perfectly reasonable thing to do” (Holmes 1986), arguing:

Why should a lobster be any more ridiculous than a dog? Or a cat, or a gazelle, or a lion, or any other animal that one chooses to take for a walk? I have a liking for lobsters. They are peaceful, serious creatures. They know the secrets of the sea, they don’t bark, and they don’t gobble up your *monadic* privacy like dogs do (Holmes 1986; see also Gautier 1881).

Nerval was fond of creatures, featured them frequently in his stories, and was known in his later years to leave messages in the form of animals—a parrot or a lobster—for his friends at the concierge as presents (Holmes 1986). In Nerval’s mind, this was neither performance nor art. He was simply perambulating the promenades of the Palais-Royal with his pet lobster.

In an effort to get to the truth behind Nerval’s lobster of legend, author and cultural critic Mark Dery queried marine scientists to understand whether a lobster could survive out of water, much less walk the streets on a leash. The general consensus reached by experts was that despite its exposed gills (which remove oxygen from seawater, or less optimally, air), a lobster could survive out of water for a short time in cool temperatures with high humidity, but is otherwise vulnerable to suffocation if the conditions are anything other than cool and moist. As to the question of their mobility on land, it was thought possible, but certainly stressful on the lobster itself. Regarding a lobster’s suitability as a pet in captivity, Nerval would have needed a cool, aerated seawater tank to keep it alive for any length of time (Dery 2013). Certainly not out of the question, but great lengths indeed to keep a lobster as a pet in post-Napoleonic France.

THE TURTLE AS A PROP

Casting the lobster aside, are there additional recorded examples of turtles on leashes? One example can be found in

Lucien Huard’s 1884 fictional adventure *Les Trois Majors* (The Three Majors). Therein, a comedic encounter takes place whereby Major Fritz unwittingly falls asleep on the beach atop a giant sea turtle only to wake up and find he’s being carried to the ocean. Later in their adventures, Fritz—having since become enamored with the idea of owning a turtle—sneaks out one morning to visit a bric-a-brac shop where he had seen a turtle the day before. With the help of a translator, Fritz gets swindled into paying twenty times its value after being told the turtle hunts mice like a cat and follows her master like a dog. Fitting his new friend with “*un petit licou*” (a little halter), Fritz finds that the turtle he’s named “Chosephine” does indeed follow, only slowly, forcing him to take her at long last under his arm and race to the docks to catch their departing ship (Huard 1884).

Upon Fritz and Chosephine’s arrival, the three majors become entangled in “*la ficelle*” (literally, “the piece of string,” aka leash) while boarding, causing them to disparage turtles as “*dissimulé*” (sneaky, underhanded).

L’histoire en donne cent preuves, c’est une tortue qui est cause de la prise de Troie... C’est une tortue qui a occasionné le déluge universel... c’est une tortue qui a mis le feu à la bibliothèque d’Alexandrie.

History gives a hundred proofs, it is a turtle that is the cause of taking Troy... It was a turtle that caused the great flood... it was a turtle that set fire to the Library of Alexandria (Huard 1884).

The majors’ misadventures are illustrated by a series of vignettes that show Chosephine on a leash (Figs. 4 and 5). But here the turtle-on-a-leash is played for comedic effect—as a sight gag, as a silly purchase, and as a prop in a race to the finish—rather than in any obvious reference to the flâneur.

Two more contemporary examples come closer to hitting the mark. French author Alfred Jarry purportedly “demonstrated his eccentricity by leading a tortoise on a leash” (Glicksberg 1976; p 345); however, the date on which he did so during his lifetime (1873–1907) isn’t specified. And in the biography of German mathematician Richard Courant, Nazi party member Wilmar Hermann Erhard Tornier “embarrasses the mathematics faculty by being pictured in the newspaper walking on a fashionable boulevard with a notorious prostitute on his arm and a tame tortoise on a leash” in Berlin ca. 1935 (Reid 1996; p 178). Both incidents straddle the rise-and-fall of the flâneur, but—other than a dose of eccentricity—neither carries the resonance or implied intent of flânerie.

LEAD BY EXAMPLE

Historical geographer Philip Howell describes the dog “lead” or “leash” as an important regulatory form of opening up public spaces to dogs and their owners in Victorian (1837–1901) and Edwardian London (1901–1910). The leash facilitates a “code of conduct” for the responsible pet owner, putting the



Il en avait aperçu une chez un marchand de bric à brac. Page 272.



Tirée par le licou, la tortue suivait très bien. Page 272.

Fig. 4. In Lucien Huard's *Les Trois Majors* (The Three Majors), Major Fritz purchases a turtle from a junk shop and, fitting his new friend "Chosephine" with "un petit licou" (a little halter), and sets off to meet his companions at the docks. The captions read: "Il en avait aperçu une chez un marchand de bric à brac." (He had seen one at a junk shop) (left) and "Tirée par le licou, la tortue suivait très bien." (Pulled by the halter, the turtle followed very well) (right) (Huard 1884).

responsibility in the hands of the owner, or more precisely, the "responsible humans and their equally responsabilized animals." The leash represents the domestication of not only the animal, but also the urban space it inhabits (Howell 2012, Howell 2015).

Howell asks whether the act of dog walking is a distinctive modern practice linked to humankind's history of domesticating animals and keeping pets (Howell 2015). Presumably, restraints such as leads, leashes, halters, and saddles have a long history in our evolving relationship with livestock (e.g. horses, cows, sheep) and pets (e.g. dogs, cats), not to mention other wildlife species like turtles (and lobsters). Can't the same question about domestication be asked about turtles? Arguably, Parisian flâneurs were not the first to put a turtle on a leash. So to better understand the urban myth of turtle walking, we must cast a broader net beyond the arcades of Paris.

In the Edo period of Japan (1603 to 1867), Japanese artists frequently depicted turtles on a different sort of leash. The woodcut print *Mannen Bridge, Fukagawa* (*Fukagawa Mannenbashi*) No. 56 (1857), by Utagawa (Andō) Hiroshige (Fig. 6), is perhaps the most iconic representation of this practice (see also Figs. 7 and 8). Hiroshige's *Mannen Bridge, Fukagawa*, was one of a series of 119 ukiyo-e landscape prints from the popular *One Hundred Famous Views of Edo* (*Meisho Edo Hyakkei*). In the Fukagawa district of Edo (present day Tokyo), turtles and fish were bred to be sold later near waterways so that the buyers could release them and obtain karma. Across Japan, market vendors displayed live turtles either balanced atop bamboo stalks (as was the method in Osaka) or suspended from string (as was the method in Edo) (see Bettelheim 2021). The bridge's name—"Mannen"—



La pauvre bête avait manqué son entrée. Page 273.

Fig. 5. As recounted in Lucien Huard's *Les Trois Majors* (The Three Majors), after purchasing a turtle ("Chosephine") from a junk shop, Major Fritz rushes to the docks to meet his companions. Upon Fritz and Chosephine's arrival, the three majors become entangled in "la ficelle" (literally, "the piece of string," aka leash) while boarding. The caption reads: "La pauvre bête avait manqué son entrée." (The poor beast had missed its entry.) (Huard 1884).



Fig. 6. The Edo period woodcut print *Mannen Bridge, Fukagawa* (*Fukagawa Mannenbashi*) No. 56 (1857), by Utagawa (Andō) Hiroshige (1797–1858), is one of a series of 119 ukiyo-e landscape prints from the popular *One Hundred Famous Views of Edo* (*Meisho Edo Hyakkei*). The bridge's name — “Mannen” — translates to “ten thousand years,” which may have been a visual/verbal reference to the turtle as a symbol of longevity. The Fukagawa district was also a common place where turtles and fish were bred, to be sold later near waterways so that the buyers could release them nearby and obtain karma.

translates to “ten thousand years,” which may have been a visual/verbal reference to the turtle as a symbol of longevity. In Japan, the tortoise is known for, and has become emblematic of, longevity and wisdom (Joly 1908, Allen 1917, Ball 1920).

The Edo period woodblock print *Onden no suisha* (*The Waterwheel at Onden*) (ca. 1830–1832), from the series *Fugaku sanjūrokkei* (*Thirty-six Views of Mount Fuji*) by Katsushika Hokusai (1760–1849) (Fig. 9), features among other characters a boy pulling a turtle by a string in a scene set against the backdrop of Mount Fuji. A second piece by Hokusai, *Poem by Harumichi no Tsuraki* (1835) from the series *Hyakunin isshu uba ga etoki* (*One-Hundred Poems as Explained by the Nurse*) (Fig. 10), also depicts a boy pulling a turtle on a string—clearly a common motif in his work.

The 1879 engraving “A Fishing Party” (Fig. 11) appeared in Thomas Wallace Knox’s semi-autobiographical account



Fig. 7. The Edo period woodblock print *Enshi juroku josen* (*Sixteen Female Sennin Charming Creatures*) (circa 1847), by Utagawa Kuniyoshi, features a woman wearing a floral-patterned blue robe who is holding an open fan while looking at two turtles for sale suspended by strings; in the inset (top right), the sennin (“Immortal”) Roko is depicting riding a tortoise that represents longevity. (Courtesy of the British Museum © The Trustees of the British Museum, released as CC BY-NC-SA 4.0).

of his travels in Asia, *The Boy Travellers in the Far East: Adventures of Two Youths in a Journey to Japan and China*. The Japanese family pictured there was returning from a fishing expedition, and the six to eight year old boy was dragging a live “tortoise” by a string (Knox 1879). In all of these instances, the turtles appear to be unwilling participants as suggested by their tugging at their restraints.

There is a common thread, if you will, that connects the turtles for sale in the markets of Edo and the depiction of turtles being dragged along by boys in these Japanese images. It makes sense that a turtle sold by a street vendor would come with a string attached, not unlike a contemporary hawker selling balloons. Unless the turtle was released immediately (as was the custom, traditionally), the turtle might otherwise have become a pet and the string, by default, a leash. But in all of these depictions, the children are dragging the turtles.

It is the boys that are setting the pace, not the turtles, a relationship that is altogether antithetical to the spirit of flânerie.

According to Dr. Hugh Stannus Stannus of the British Museum, among the Yao (waYao) people of southeast Africa near Lake Nyasa, there is the saying, “one who carries a tortoise (on a string over his back) is likely to get his clothes soiled” (Stannus 1922). This could be interpreted as an early variation on today’s western idioms like “You reap what you sow” or “A taste of your own medicine.” Although this example may very well pre-date the Parisian flâneur, this Yao idiom was used in reference to a tribesman that committed adultery with his chief’s wife (Stannus 1922) and has little bearing on flânerie except for the imagery of a turtle and string.

In the United States, among the more common portrayals of turtles on leash can be found on trade cards, a predecessor of the contemporary business card that first arose in late 17th-century Europe and became popular in America in the mid-19th century. In the two examples shown here (Figs. 12 and 13), beribboned Victorian-era children in smocks and sailor suits lead turtles on leashes like pets. One card bears an advertisement for the Vaseline company—“the Elixir Vitæ”—out of New Jersey, the other for businessperson M.M. Kittredge on a trade card issued by Ketterlinus Co. Printing House out of Philadelphia. Although the illustration on the former trade card appears to have been restricted to Vaseline advertisements, the illustration on the latter trade card appears to have circulated more indiscriminately for companies and products like “Mack’s Milk Chocolate” and “Tule Carpet Lining.” If anything, their cosmopolitan applications suggest these images bear a closer resemblance to “stock imagery” whose content matters less than their aesthetic appeal. In all cases, however, the turtles on leash appear to be incidental to the services being sold.

Another purportedly Asian image with less certain bona fides can be found on a blank trade card published by Farmer, Livermore & Co., Prov. R.I. (Providence, Rhode Island, USA)” (Fig. 14). In what may be another example of Orientalism or Japonisme (the monetization of the mystique of “the Orient” in western consumer culture; see Bettelheim 2021), this Victorian-era trade card features a steel plate engraving depicting a man with a fishing net over his right shoulder, leading a turtle on a leash. The depiction of a fisherman and turtle together could be a westernized allusion to the Japanese legend of Urashima Tarō in which a fisherman is rewarded for saving a turtle (Joly 1908, Seki 1966, Ashkenazi 2003).

Other cards published by this advertising agency featured mostly western images like pastoral scenes of grazing cattle, woodland panoramas, wave-tossed rocky coastlines, snow-draped fields, sailing ships, and hunting dogs, and were circulated as advertisements for companies and products such as “Goff’s dressmaker braid,” “The Sunday School Times,” “Topical Reparation” (medicine), “Huntoon & Gorham wholesale Tobacconists,” and “Edward B. Hanes, Traveling Agent.” Any meaningful connection between Farmer, Livermore & Co., their customer base, and turtles appears

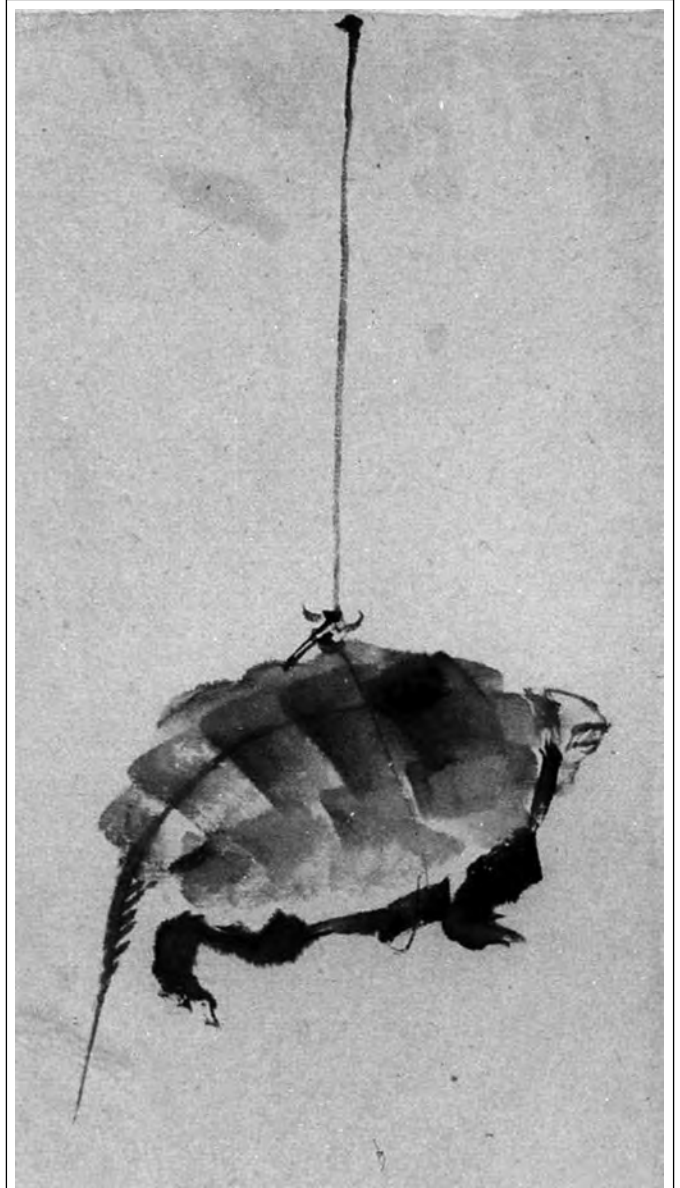


Fig. 8. This Edo period ink on paper painting *Tortoise Suspended By String*, by Katsushika Hokusai (school of), depicts a market turtle displayed for sale. (Courtesy of the Metropolitan Museum of Art (CC0 1.0 Universal)).

unlikely. Like the aforementioned trade cards, this too may be an example of stock imagery. Therefore, without more contextual clues, the significance of this turtle on a leash is unclear at best.

FLÂNERIE OR FLIMFLAMMERY?

Without any clear precedence set for flâneurs and turtle-walking pre- or post-Paris, Benjamin’s convolute appears to represent the first and last instance when the practice of turtle-walking flânerie took place. But if the flâneur alone was a fabulous work of fiction rather than a historical figure, the likelihood of a flâneur walking a turtle becomes more remote than ever. If



Fig. 9. The Edo period woodblock print *Onden no suisha* (*The Waterwheel at Onden*) (ca. 1830-1832) from the series *Fugaku sanjūrokkei* (*Thirty-six Views of Mount Fuji*), by Katsushika Hokusai (1760-1849), features a boy pulling a tortoise by a string (expanded view on right), a woman with a bucket, a woman washing herbs in the stream, and two men climbing with bundles over their shoulders, set against the backdrop of Mount Fuji. (Courtesy of TheMet, Henry L. Phillips Collection, Bequest of Henry L. Phillips, 1939).



Fig. 10. The Edo period woodblock print *Poem by Harumichi no Tsuraki* (1835) from the series *Hyakunin issshu uba ga etoki* (*One-Hundred Poems as Explained by the Nurse*), by Katsushika Hokusai (1760-1849), is an illustration meant to accompany a poem by a tenth-century provincial governor. The poem reads: “Ah, the weir / that the wind has flung / across the mountain stream / is the autumn foliage that / cannot flow on, even though it would.” The image shows the everyday life of peasants: men cutting boards, a fisherman, and a woman and child, who is dragging a turtle on a leash (expanded view on right). (Courtesy of the British Museum © The Trustees of the British Museum, released as CC BY-NC-SA 4.0)

the flâneur never existed, then perhaps what Benjamin meant to convey in his convolute was not that the flâneur *took* turtles for a walk, but that the flâneur was one who *might* take turtles for a walk, a nuanced but important difference.

Did Benjamin fabricate the flâneur and turtle? There’s no evidence to suggest as much. Benjamin was a consummate observer and recorder whose integrity has not been challenged. A more likely explanation is that someone may very well have taken a turtle for a walk on a leash once upon a

time, once or twice, and that such a happening inexplicably found its way to Benjamin’s ear and caught his attention as a flourish worthy of a footnote. Still, the evidence suggests it is highly unlikely turtle-walking was an actual *thing* that one did. More likely, it was something that *may* have taken place but with no more regularity than a neighborhood eccentric or an itinerant street performer or an indulgent father on a Sunday stroll standing patiently on a street corner holding his daughter’s pet turtle on a leash while she chased butterflies



Fig. 11. The 1879 engraving “A Fishing Party” appeared in the semi-autobiographical account of Thomas Wallace Knox in *The Boy Travellers in the Far East: Adventures of Two Youths in a Journey to Japan and China*. Pictured here is a Japanese family returning from a fishing expedition. The woman is carrying a basket of fish while nursing a child, the man is carrying fishing tackle, and the six to eight year old boy is dragging a live tortoise by a string (Knox 1879).

in the park or made a wish on a dandelion. In all likelihood, turtle-walking by flâneurs happened with no more regularity than it did by African tribesmen or Nazis or French poets. That is to say, a chance encounter with a chance occurrence that caught someone’s attention long enough to become trapped in time in a footnote that—one hundred years later—still manages to capture the world’s attention.

This revelation has some real-world applications worth considering. For example, if the flâneur was fictional and the turtle-walking flâneur fantasy, then this imagery that fledged from Benjamin’s writings any time after 1927 couldn’t have been the inspiration for Osman Hamdi Bey’s 1906 painting “The Tortoise Trainer.” In the art world, this understanding makes room for other interpretations of Osman Hamdi’s work, allowing art historians to focus on more practical explanations.

The permanence of Benjamin’s lasting legacy is a product of humankind’s need to find meaning in the mundane, to look for symbolism, to find fodder to fuel our collective mythology. In this case: mythmaking born from a footnote. Ironical indeed for a man who set out to translate myth into history.



Fig. 12. This trade card for the Vaseline company — “the Elixir Vitæ” — out of New Jersey, depicts two Victorian-era children in smocks and sailor suits watching a turtle on a leash.



Fig. 13. This trade card for businessperson M.M. Kittredge, on a card issued by Ketterlinus Co. Printing House out of Philadelphia, also depicts two Victorian-era children watching a turtle on a leash. The illustration on this card seems to have circulated more indiscriminately for companies and products like “Mack’s Milk Chocolate” and “Tule Carpet Lining.”

There is something undeniably enchanting about a mysterious gentleman dressed to the nines with a turtle on a leash, a gentleman willing to let the turtle set his pace. At the end of the day, the turtle on a leash represents not an example of, but the epitome of, the apex flâneur. But even at his apex, the flâneur was more of a caricature than a character whom, whether or not he walked the streets, certainly thrived between paper sheets. Benjamin’s turtle-walking flâneur lived and died in the ink shed on book pages almost a century ago—only to spring to life again in our imagination as a modern myth.

ACKNOWLEDGEMENTS

This work could not have been undertaken without the help of Christopher Thayer, who first brought “The Tortoise Trainer” (and by association, Benjamin’s flâneur) to my attention. I thank Edhem Eldem for assistance lo-



Fig. 14. This steel plate engraving on an otherwise blank trade card, published by Farmer, Livermore & Co., Prov. R.I. (Providence, Rhode Island, USA), depicts a fisherman with a fishing net over his right shoulder, leading a turtle on a leash. The illustration may be an allusion to the Japanese legend of Urashima Tarō, in which a fisherman is rewarded for saving a turtle.

cating historical source material; Erika Yamasaki for her assistance translating resources; and George H. Balazs (www.georgehbalazs.com), who was instrumental as a liaison between me and native Japanese, Chinese, and Korean scholars during the research phase.

REFERENCES

Allen, Maude Rex. 1917. *Japanese Art Motives*. A.C. McClurg & Co., Chicago, USA 341 p.
 Anonymous. 1950. La tortue remplacera-t-elle Médor? *La Bourgogne républicaine* 13 (décembre):3.
 Arendt, Hannah. 2006. Introduction: Walter Benjamin: 1892–1940. Pp. 1–58 in: Hannah Arendt (Ed.). *Illuminations*. Brace & World, Inc., New York, USA.

Ashkenazi, Michael. 2003. *Handbook of Japanese Mythology*. ABC-CLIO, Santa Barbara, California, USA. 375 p.
 Atkins, Chet and Bill Neely. 1974. *Country Gentleman*. Henry Regnery Company, Chicago, Illinois, USA. 225 p.
 Ball, Katherine M. 1920. Decorative Motives of the Oriental Art – Second Series, Part XXI. *Japan: an Illustrated Magazine of Oriental Travel* 10(2):23–28.
 Baudelaire, Charles. 1863a. Le Peintre de la Vie Moderne (The Painter of Modern Life) (part I). *Le Figaro*. November 26: p 1–5.
 Baudelaire, Charles. 1863b. Le Peintre de la Vie Moderne (The Painter of Modern Life) (part II). *Le Figaro*. November 29: p 1–5.
 Baudelaire, Charles. 1863c. Le Peintre de la Vie Moderne (The Painter of Modern Life) (part III). *Le Figaro*. December 3: p 1–5.
 Baudelaire, Charles. 1863d. Le Peintre de la Vie Moderne (The Painter of Modern Life). *Poetry in Translation*. Translated by A.S. Kline.
 Benjamin, Walter. 1955. On Some Motifs in Baudelaire. Pp. 157–202 in: Hannah Arendt (Ed.). *Illuminations*. Harcourt, Brace & World, Inc., New York, USA.
 Benjamin, Walter. 1999. *The Arcades Project*. Belknap Press of Harvard University Press, Cambridge, Massachusetts, USA. 1073 p. Also available in pdf-format.
 Benjamin, Walter. 2006. The Paris of the Second Empire in Baudelaire. Pp. 46–133 in: Michael W. Jennings (Ed.). *The Writer of Modern Life: Essays on Charles Baudelaire*. Belknap Press of Harvard University Press, Cambridge, Massachusetts, USA. pp 46–133.
 Bettelheim, Matthew P. 2020. Osman Hamdi's "The Tortoise Trainer" – The Tortoise and the Tulip Revisited. *Bibliotheca Herpetologica*. 14(3):15–18.
 Bettelheim, Matthew P. 2021. The Tortoise in the Temple: Orientalism, Japonisme, and the Exploitation of Asian Turtle Mystique in Western Popular Imagination. *Bibliotheca Herpetologica*. 15(13):128–140.
 Bettelheim, Matthew P. and Ertan Taskavak. 2006. The Tortoise and the Tulip – *Testudo graeca ibera* and Osman Hamdi's "The Tortoise Trainer". *Bibliotheca Herpetologica*. 6(2):11–15.
 Bower, B.M. 1923. *The Parowan Bonanza*. Grosset & Dunlap Publishers, New York, New York, USA. 305 p.
 Martín Caparrós. 2008. *Valfierno: The Man Who Stole the Mona Lisa*. Atria Books, New York, New York, USA. 342 p.
 Cooke, Phillip Nicholas. 1990. *Back to the Future: Modernity, postmodernity and locality*. Unwin Hyman Ltd, Winchester, Massachusetts, USA. 193 p.
 Coverley, Marlin. 2012. *The Art of Wandering: The Writer as Walker*. Oldcastle Books, Harpenden, United Kingdom. 253 p.
 Dery, Mark. 2013. Nerval's Lobster: Is Walking a Crustacean More Ridiculous Than a Dog? *Boing Boing* 13 February.
 Dey, Claudia. 2008. *Stunt*. Coach House Books, Toronto, Ontario, Canada. 245 p.
 Featherstone, Mike. 1998. The "Flâneur", the City and Virtual Public Life. *Urban Studies* 35(5/6):909–925.
 Federle, Courtney. 2001. Picture Postcard: Kracauer Writes from Berlin. Pp 39–54 in: Kenneth S. Calhoun (Ed.). *Peripheral Visions: the Hidden Stages of Weimar Cinema*. Wayne State University Press, Detroit, Michigan, USA.
 Ferguson, Priscilla Parkhurst. 1994. The Flâneur On and Off the Streets of Paris. Pp. 22–42 in: Keith Tester (Ed.). *The Flâneur*. Routledge, New York, New York, USA.

- Ferris, David S. 2008. *The Cambridge Introduction to Walter Benjamin*. Cambridge University Press, New York, New York, USA. 159 p.
- Frisby, David. 1994. The *flâneur* in social theory. Pp. 81–110 in: Keith Tester (Ed.). *The Flâneur*. Routledge, New York, New York, USA.
- Gautier, Théophile. 1881. Gérard de Nerval. Pp. 1–68 in: G. Charpentier (Ed.). *Portraits et Souvenirs Littéraires*. Paris, France.
- Glicksberg, Charles Irving. 1976. *The Literature of Commitment*. Associated University Presses, Inc., Cranbury, New Jersey, USA. 467 p.
- Gluck, Mary. 2003. The Flâneur and the Aesthetic: Appropriation of Urban Culture in Mid-19th-Century Paris. *Theory Culture and Society* 20(5):53–80.
- Goebel, Rolf J. 2009. Introduction: Benjamin's Actuality. Pp. 1–22 in: Rolf J. Goebel (Ed.). *A Companion to the Works of Walter Benjamin*. Camden House, New York, New York, USA.
- Hodgkinson, Tom. 2007. *How To Be Idle: A Loafer's Manifesto*. Harper Perennial, New York, New York, USA. 286 p.
- Holmes, Richard. 1986. *Footsteps: Adventures of a Romantic Biographer*. Penguin Books, New York, New York, USA. p 288.
- Horton, Scott. 2008. Nerval: A Man and His Lobster. *Harper's Magazine*. (12 October)
- Howell, Philip. 2015. *At Home and Astray: The Domestic Dog in Victorian Britain*. University of Virginia Press, Charlottesville, Virginia, USA. 252 p.
- Howell, Philip. 2012. Between the Muzzle and the Leash: Dog-walking, Discipline, and the Modern City. Pp. 221–241 in: Peter Atkins (Ed.). *Animal Cities: Beastly Urban Histories*. Ashgate Publishing Group, Burlington, United Kingdom.
- Huard, Lucien. 1884. *Les Trois Majors: Aventures Drolatiques dans les Cinq Parties du Monde et dans Mille Autres Lieux*. L. Boulanger, Paris. 596 p.
- Huysmans, Joris-Karl. Against the Grain (or Against Nature) [À rebours].
- Joly, Henri L. 1908. Legend in Japanese Art; a description of historical episodes, legendary characters, folk-lore, myths, religious symbolism, illustrated in the arts of old Japan. J. Lane Co., New York. 453 p.
- Jönsson, Li and Tau Ulv Lenskjöld. 2019. "Hybrids. Others/Selfies." Design and Nature: A Partnership. Ed. Kate Fletcher, Louise St. Pierre, and Mathilda Tham. Routledge, New York, New York, USA. p 53–58.
- Kendall, Elizabeth. 2008. *Autobiography of a Wardrobe*. Pantheon Books, New York, New York, USA. 223 p.
- Knox, Thomas Wallace. 1880. *The Boy Travellers in The Far East (Part First): Adventures of Two Youths in a Journey to Japan and China*. Harper & Brothers, Publishers, New York, New York, USA. 421 p.
- Larousse, Pierre. 1872. "flâneur"; "flânerie". Grand dictionnaire universel du XIXe siècle : français, historique, géographique, mythologique, bibliographique, littéraire, artistique, scientifique, etc., etc. Tome 8 (F–G). Administratif du Grand Dictionnaire Universel. p 440.
- Mazlish, Bruce. 1994. "The Flâneur: From Spectator to Representation." *The Flâneur*. Ed. Keith Tester. Routledge, New York, New York, USA. pp 43–60.
- McDonough, Tom. 2002. The Crimes of the Flâneur. *October* 102(4):101–122.
- Milne, Drew. 2017. "The Ballad of Liberal Moonshine." *Chicago Review* 60(3): 120–123.
- Nichols, Travis. 2010. "Lament for Scott Street." See Me Improving. Copper Canyon Press, Port Townsend, WA, USA.
- Neilson, W.A., T.A. Knott, and P.W. Carhart (Eds). 1939. "flâneur"; "flânerie". Webster's New International Dictionary of the English Language (2nd ed.). G. & C. Merriam Company, Publishers, Springfield, MA., USA.
- Osborne, Peter and Matthew Charles. 2021. "Walter Benjamin." *The Stanford Encyclopedia of Philosophy* (Fall 2021 Edition), Edward N. Zalta (ed.).
- Goebel, Rolf J. 2009. "Introduction: Benjamin's Actuality." *A Companion to the Works of Walter Benjamin*. Ed. Rolf J. Goebel. Camden House, New York, New York, USA. pp 1–22.
- Poe, Edgar Allan. 1840. "The Man of the Crowd." *Graham's Magazine* 7(6): pp 267–270.
- Reid, Constance. 1996. *Courant*. Copernicus, New York, NY, USA. 318 p.
- Rhodes, Alan. 2010. *Returning to the Branch: Selected Writings*. Chuckanut Editions, Bellingham, Washington, USA. 255 p.
- Roddiere, Mireille. 2020. "The Indelible Traces of Her Footsteps." *Writing Architectures: Ficto-Critical Approaches*. Ed. Hélène Frichot and Naomi Stead. Bloomsbury Publishing, New York, New York, USA. p 125–140.
- Rodriguez, Karen and Bradley Rink. 2011. *Performing Cities: Engaging the High-Tech Flâneur*. *Frontiers: The Interdisciplinary Journal of Study Abroad* 20(1):103–119.
- Seki, Keigo. 1966. Types of Japanese Folktales. *Asian Folklore Studies*. 25: 220 p.
- Shaya, Gregory. 2004. The Flâneur, the Badaud, and the Making of a Mass Public in France, circa 1860–1910. *American Historical Review* 109(1): 41–77.
- Shields, Rob. 1994. "Fancy Footwork: Walter Benjamin's Notes on Flânerie." *The Flâneur*. Ed. Keith Tester. Routledge, New York, New York, USA. pp 61–80.
- Sieburth, Richard. 1988. Benjamin the Scrivener. *Assemblage* 6:6–23.
- Solibakke, Karl Ivan. 2009. "The *Passagen-Werk* Revisited." *A Companion to the Works of Walter Benjamin*. Ed. Rolf J. Goebel. Camden House, New York, New York, USA. pp 153–176.
- Solnit, Rebecca. 2000. *Wanderlust – A History of Walking*. Penguin Putnam Inc., New York, New York, USA. 324 p.
- Stannus, Hugh Stannus. 1922. "The Wayso of Nyasaland." *Harvard African Studies, Volume III. Varia Africana III*. Eds. E.A. Hooten and Natica I. Bates. pp. 229–372.
- Tester, Keith. 1994. "Introduction." *The Flâneur*. Ed. Keith Tester. Routledge, New York, New York, USA. pp 1–21.

We suggest the following format for citing this article:

Matthew P. Bettelheim, M. P. 2022. Flânerie or Flimflammy? — The Urban Myth of the Flâneur and Turtle-Walking. *Bibliotheca Herpetologica* 16(1):1–13.



A Peculiar Case of Ophiomania: The Herpetological Pursuits, Contributions and Advocacy of Arthur Stradling (1851–1902)

Robert W. Mendyk

Department of Herpetology, Audubon Zoo, 6500 Magazine Street,
New Orleans, LA 70118 USA, rmendyk@auduboninstitute.org
Department of Herpetology, Smithsonian National Zoological Park,
3001 Connecticut Avenue NW, Washington, D.C. 20008, USA

INTRODUCTION

Amateur herpetologists have undeniably played a crucial role in shaping and advancing the study of reptiles and amphibians over the last several centuries—a rich tradition that continues to this day.

With few exceptions, it was not until the 20th Century that it became possible for someone to gain professional employment strictly as a herpetologist, and prior to this, most early contributors to the field held positions and backgrounds in other scholarly disciplines, particularly medicine (Schmidt, 1955; Adler, 2007, 2012, 2014). Following in such a tradition, Arthur Stradling (1851–1902; Fig. 1), an English physician who lacked formal schooling in zoology but excelled as a naturalist, made many important contributions to the study of reptiles and amphibians during the last three decades of the 19th Century. Yet, despite his many discoveries and prolific output of both scholarly and popular publications on reptiles and amphibians, he has been largely overlooked and infrequently referenced in modern works of herpetology and herpetological history (Coote, 2019a,b). The following account expands on the information presented in a recent biographical vignette of Stradling by Coote (2019a), and chronicles his remarkable life and herpetological pursuits, contributions and advocacy for reptiles and amphibians, concluding with an annotated bibliography of his numerous herpetological publications.

EARLY LIFE AND CAREER

Born in Devonshire (Devon), England in 1851 (Anonymous, 1851) to parents Charles and Laura, William Arthur Stradling developed an affinity for snakes and other herpetofauna at an early age through his father (Stradling, 1895h; Kenealy, 1898), which would become a driving force behind his choice of career and life's pursuits. One of his earliest herpetological recollections from his childhood was a visit to a traveling menagerie, where his father slipped the keeper some change to take a python out of its display case and drape it around young Arthur's neck (Stradling, 1890f). Back at the Stradling

household, his father also kept a small menagerie of exotic animals that regularly included reptiles and amphibians—a tradition that Stradling himself would later continue with his own son (Fig. 2; Stradling, 1895h).

Stradling went on to study medicine at St George's Hospital in London, passing his examinations in 1870 at the early age of 19, but would not qualify for admittance to the Royal College of Surgeons for another two years (he would eventually become a full Fellow of the College in 1875 [Anonymous, 1875]). Upon qualifying, he took a position as an on-board surgeon with the Royal Mail Steam-Packet Company, a trans-oceanic postage and shipping firm, which took him to many exotic destinations around the world including, but not limited to Ceylon, India, China, Japan, and the Philippines in the East, and Mexico, Costa Rica, Guatemala, Nicaragua, Panama, Colombia, Argentina, Guiana, Cuba, Haiti, and Jamaica in the West. Although his medical duties with the company procured his salary, Stradling appears to have been more eager and interested in the opportunities his travels afforded for collecting and studying snakes and other herpetofauna (Anonymous 1896b). While at sea, he transformed his ship cabin into a biological laboratory for the purposes “*not only of studying them and matters connected with them from a scientific point of view, but of living in close and constant companionship with them*” (Stradling, 1890a).

Traveling with the company for many years—likely more than a decade, cumulatively, Stradling experienced various hardships and misadventures throughout his tenure. In Brazil, he faced a smallpox outbreak aboard his ship (Stradling, 1879). In Nicaragua, he fell ill to an aggressive case of malaria that left him incapacitated and delirious for six weeks (Stradling, 1889e, 1891f; Kenealy, 1898); still, despite nearly losing his life from the illness, he fondly reflected back on his time in the forests of Nicaragua as one of the greatest experiences of his life (Stradling, 1891f). In Rangoon, he boarded a steamer bound for Shanghai, which he soon found to be under the command of pirates who raided villages along the coast by night, noting that “*...shrieks, flames, the report of firearms and the clash of steel would testify to the descent of my shipmates upon one of the numerous villages which*



Fig. 1. Undated portrait of Arthur Stradling. Courtesy of Chris Reynolds, Hertfordshire Genealogy News.

fringe the shores of the China sea" (Stradling, 1896b,c). Stuck onboard this ship for four months, he eventually devised a plan to share his hidden cache of medicinal morphine with the ship's crew. With the entire crew drugged, he made his escape in a dinghy, reaching the shore somewhere along the coast of China without any of his personal possessions or even shoes. Fearing that he would be pursued by his former captors, he hid out in a tomb before setting out on foot for civilization at nightfall. After traveling some 200 miles barefoot under the cover of darkness, hiding in tombs and ditches by day and nearly perishing from malnourishment, he arrived at a village some 22 days later (Stradling, 1896b,c) and was presumably able to secure transport that eventually led him back to England.

While back in England, Stradling would practice medicine out of his home at Watford, Hertfordshire, and served as the president of the West Herts Medical Society from 1899 to 1900. As a physician, he authored several papers that described novel therapies for such maladies as cancerous tumors (Stradling, 1887) and sea sickness (Stradling, 1892o), refuted popular medical misconceptions of the time including the belief that falls from great heights caused death from as-

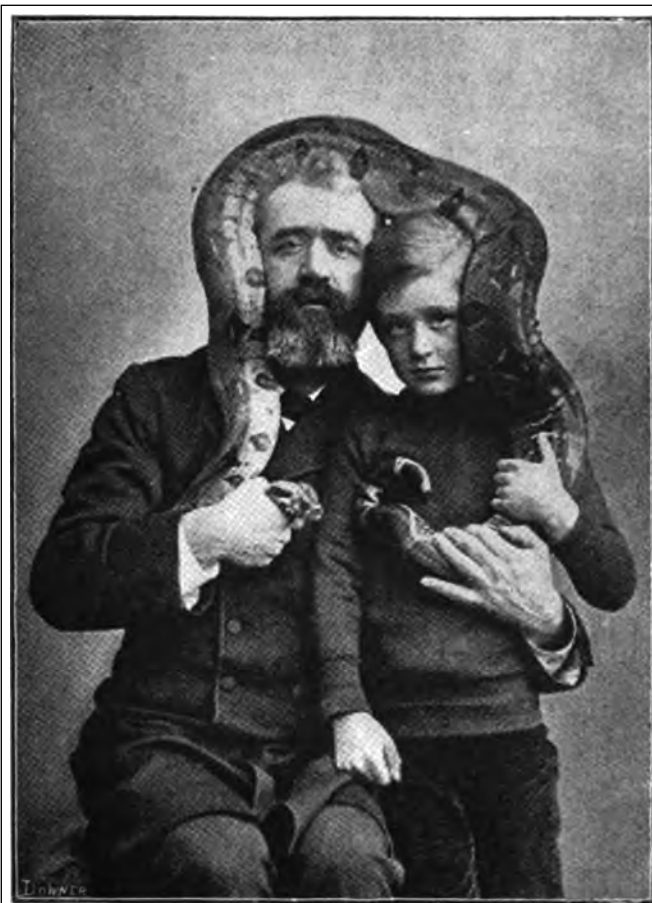


Photo by F. Downer, Watford.

Fig. 2. Stradling with his son, Arthur and a *Boa constrictor* (from: Stradling, 1895h).

phyxiation (Stradling, 1883m), and suggested that peculiarities of the tongue could be used as a supplemental character to fingerprints for identifying criminals (Stradling, 1894m). A popular topic with late Victorians including herpetologist Frederick FitzSimons (1933), Stradling was also interested in spirituality and the supernatural, writing extensively on these topics and phenomena, including ghosts that he purported to have seen (Stradling, 1883j,k,l, 1894e).

The vast majority of Stradling's publications focused on herpetological topics, with snakes being most prominently featured. Complementing these writings, he also delivered numerous public lectures throughout Britain and mainland Europe on snakes and other zoological topics which often incorporated live snakes from his own personal collection—sometimes several dozen of them at a time (Anonymous, 1887a,b,c). Through his popular writings and lectures, Stradling became widely recognized as a global authority on snakes (Kenealy, 1898) and was one of the first outspoken advocates for their appreciation and preservation.

Stradling developed a close relationship with the Zoological Society of London (ZSL), which gained him special access to the zoological garden's reptile house (Figs. 3

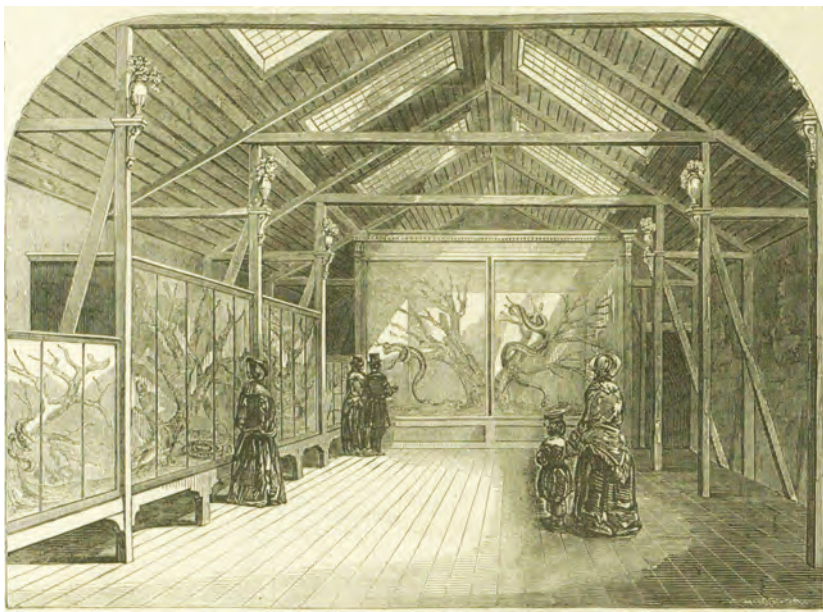


Fig. 3. Interior view of the reptile house at the Zoological Society of London (ZSL) in 1849 (from: Anonymous, 1849). Stradling supplied many live reptiles and amphibians to the ZSL and made extensive observations on the reptile and amphibian collection here over several decades.



Fig. 4. Interior view of the ZSL's second reptile house shortly after its opening in 1883 (from: Anonymous, 1883b), which according to Stradling (1883a) was a vast improvement for the well-being of its living collection.

& 4) and its collection (e.g., Stradling, 1893a). He was first appointed as a Corresponding Member of the ZSL in 1880 (Anonymous, 1883a) and then later as a Fellow of the Society in 1887, and also served two terms as the president of the Hertfordshire Natural History Society and Field Club (1893–1895, 1896–1897).

In 1896, a new society was established in Lincolnshire, England with the mission of promoting “the study and dissemination of knowledge of and interest in all varieties of

reptiles, including snakes as well as lizards” (Saville-Kent, 1897); Stradling was elected as its founding president. In addition to possibly being the world’s first official herpetological society, this Reptilian Society published what appears to have been the first magazine dedicated to reptiles and amphibians, titled *The Vivarium* and released in 1896 (not to be confused with the popular serial of the same title published some 92 years later by the American Federation of Herpetoculturists, or Rev. Gregory C. Bateman’s [1897] book of the same title). With *The Vivarium* serving as the arm of the society, it sought to present “... information of a more practical nature than has been hitherto available for those who make reptiles their particular hobby and desire fuller knowledge concerning the habits and treatment of their adopted favourites” (Saville-Kent, 1897). The inaugural issue was produced by lithography, with the hopes that “a sufficient number of supporters of the Society and those subjects which the periodical specially advocates, will be forthcoming to justify the early advancement of this magazine to the dignity of print” (Saville-Kent, 1897). It is unclear whether subsequent issues were produced and if any surviving copies of the publication still exist today.

HERPETOLOGICAL CONTRIBUTIONS

Stradling was a prolific author, producing no fewer than 95 articles on reptiles and amphibians appearing in both scientific journals and popular magazines between 1880 and 1896, as well as many correspondence letters in newspapers and magazines that sought to dispel folklore and misinformation or responded to general inquiries from readers (see Appendix). Referring to his own herpetological interests and pursuits as “*ophiomania*” (Stradling, 1895h), Stradling’s many contributions were based largely on his own studies and experiences with species and specimens he encountered and collected in the field, maintained in

his personal collection, and observed at various zoological gardens, particularly the ZSL. The major driving force behind his herpetological activities appears to have been rooted in education and advocacy aimed at dispelling superstitions and misconceptions about reptiles—particularly snakes, and advancing knowledge about their natural history, habits, husbandry and venoms (e.g., Stradling, 1880, 1882c, 1893c,d, 1895a,c), with Stradling noting:

“The object of these papers is not to teach Ophiology, but to point out the simplest and most direct methods by which the student may avail himself of that royal road to knowledge, the book of Nature.” (Stradling, 1882e)

Stradling expressed frustration over the heavy reliance on preserved specimens for inferring about the natural history and behavior of reptiles at the time, and was of the opinion that few scholars had any knowledge or familiarity with the actual habits of the species they reported on, having never seen a living specimen themselves in many cases. Using the first live Mexican Beaded Lizard (*Heloderma horridum*) acquired by the ZSL as an example, Stradling (1882e) criticized earlier statements made by purported authorities on the habits of the species based solely on pickled museum specimens, commenting, *“But how many of these writers, I asked, have been to Mexico and studied the creature on its own ground? How many, even of those who have been there, have seen a live Heloderme [sic]? Not one as far as we could discover.”* He went on to say *“... obviously, the school-boy who pays his sixpence to go to the Zoo, and stares at the Lizard as it waddles round its cage behind a pane of glass, is better qualified to write about those details which lie beyond the pale of its anatomy.”* (1882e). Indeed, Stradling saw great value and opportunity in studying the habits and behaviors of captive reptiles and amphibians, regardless of how trivial or insignificant a discovery or observation may have seemed at the time:

“I am always learning something new about snakes, something that I am astonished not to have perceived before—something, too, that often serves to link together facts previously observed, but obscure and puzzling until this key to their meaning and harmony comes to hand, opening up fresh disclosures in the life history and mystery of these interesting brutes.” (Stradling, 1890a)

and

“... search, study, compare, contrast, know them, and you will discover everywhere the same beautiful and unvarying method and harmony of design, yet the same infinite and glorious feast of variety.” (Stradling, 1894h)

Stradling also called upon other reptile enthusiasts to record and share their observations, noting:

“It’s surprising how much you collect and group, how many things you find out that you know, simply by the order and method of arrangement which is brought about by the reflection consequent on writing.” (Stradling, 1890a)

Beyond his own publications, various interviews, quotes, and unpublished observations and findings of his, covering a broad range of herpetological topics, were incorporated into

the published works of some of his contemporaries including Catherine C. Hopley (1882), Gregory C. Bateman (1897) and William Saville-Kent (1897). Beyond a recent reprinting of some of his articles on snake husbandry (Coote, 2019a,b), few of Stradling’s published works appear to have been cited or referenced in the herpetological literature, despite covering a myriad of important topics and presenting many new ideas, discoveries and insights. Some of his more significant insights and contributions are discussed below.

NATURAL HISTORY, PHYSIOLOGY AND BEHAVIOR

An astute naturalist, Stradling took meticulous notes and described many fascinating behaviors and biological phenomena that had not previously been reported in reptiles, including some that would ultimately get overlooked and independently discovered by others several years or even decades later. For example, lingual luring, the use of the tongue as a deceptive lure to attract prey, has now been documented in several snake families (Welsh and Lind, 2000; Hansknecht, 2008; Glaudas and Alexander, 2016; Mario-da-Rosa, 2020). Stradling appears to have been one of the first individuals to call attention to the behavior in snakes and its potential mimicry of a writhing worm or insect (Stradling, 1890a, 1895g), having observed the behavior in several species including an anaconda that was fed a hen as well as an unidentified snake in Costa Rica whose flickering tongue attracted a scarlet tanager (Stradling, 1890a, 1895g). He appears to have discovered the phenomenon independently around the same time as his contemporary Catherine C. Hopley, who also reported on the behavior (Hopley, 1882; Hudson, 1893). Stradling may have also been the first person to propose an olfactory role for the snake tongue (Stradling, 1890b), several decades before such a function was tested and confirmed experimentally (e.g., Kahmann, 1932, 1934).

Stradling carried out various investigations on feeding and digestion in snakes and discussed the acquisition of prey through envenomation and constriction (Stradling, 1893e). Through various investigations, he studied the link between environmental temperatures and digestive rates and reported marked differences in feces and urate production between frog and fish-eating snakes and those fed birds and mammals (Stradling, 1882a). He was also particularly fascinated by the reluctance of many captive snakes to feed, noting:

“Of all the phenomena pertaining to a snake’s life-routine, those incidental to its dietetic peculiarities are perhaps the most striking; if there be one thing more remarkable than the way it eats it is the way in which it doesn’t eat”. (Stradling, 1896a)

He was one of the first authors to call attention to the remarkable ability of some snakes, particularly large boids and pythons, to withstand prolonged periods without eating. Most notably, he recorded a *Boa constrictor* that went more than

two years without eating before it began feeding voluntarily (Stradling, 1895b).

Also fascinated by the “desquamation” or shedding of the skin by snakes (Stradling, 1882a, 1894b), Stradling provided detailed descriptions of the process including patterns and frequencies observed in various taxa. He also sought to gain a better understanding of the exudation of fluid beneath the skin of snakes shortly before it is cast by investigating its chemical composition, ruling out the possibility of several compounds including uric acid and lactic acid (he suspected that shedding aided in the excretion of bodily toxins) (Stradling, 1882a, 1890b,c).

The deposition of a clutch of eggs by a Grass Snake (*Natrix helvetica*) in Stradling’s collection prompted investigations that led to new insights on maternal egg incubation in snakes (Stradling, 1882d,o). Carefully measuring the temperature around the eggs within the female’s coils relative to the ambient air temperature, he recorded a maximum increase in the eggs’ temperature of 1.8 °F which he concluded was generated by the female, noting “*there could be no doubt of the little serpent’s energy and definite purposeful determination in its object*”. Although successful maternal egg incubation had previously been observed in pythons at several European zoological gardens dating back to 1841 (Hopley, 1882), Stradling’s early investigations with *N. helvetica* appear to have been one of the first attempts to accurately record and quantify temperature changes associated with maternal incubation in snakes (but see also Valenciennes, 1841), and may be the only investigations carried out on this phenomenon in *N. helvetica* to date.

Seed dispersal by snakes has received some attention in the literature in recent decades (Engel, 1997; Reiserer et al., 2018); the phenomenon had been observed and documented by Stradling more than a century ago (Stradling, 1890d). Noting that grain and the seeds of fruit were occasionally found in the stomachs of dissected snakes, he also described an incident where a deceased exotic snake (species not identified) was buried in a vase of soil in order to skeletize it. From this vase grew a rare and beautiful tropical plant that purportedly originated from a seed inside the buried snake’s digestive tract (Stradling, 1890d).

Stradling provided popular accounts on the natural history and behavior of various species including *N. helvetica* (Stradling, 1892b,c), the Parrot Snake (*Leptophis ahaetulla*) (Stradling, 1893b), Texas Horned Lizard (*Phrynosoma cornutum*) (Stradling, 1891d), *Heloderma horridum* (Stradling, 1882j), European Glass Lizard (*Pseudopus apodus*) (Stradling, 1890e), Northern Viper (*Vipera berus*) (Stradling, 1892i) and Ornate Horned Frog (*Ceratophrys ornata*) (Stradling, 1890g). He also prepared what may have been the most comprehensive account on the natural history and behavior of sea snakes at the time (although this could have also possibly been referring to sea kraits [*Laticauda*]), based on two months of observations on the behavior and feeding habits of several individuals (species not identified) that he

confined to a large, deep tidal pool (Stradling, 1891a,b,c). In more generalized accounts, he discussed the natural history and behavior of crocodilians (Stradling, 1889a,b,c,d) and various other snake species (Stradling, 1894g,h, 1895a), as well as the behavior and defensive strategies (Stradling, 1882f, 1895d) and functional morphology (Stradling, 1895g) of snakes. He also discussed the likelihood of, and reviewed purported accounts of man-eating reptiles (Stradling, 1892m).

Snake Conservation

Recognizing the threat that human activities can play on wild reptile populations, Stradling (1895f) may have been one of the first authors to call attention to the conservation status and decline of a snake species. Enamored by the beauty of the Jamaican Boa (*Chilabothrus subflavus*), having observed several specimens at the ZSL and kept some individuals in his private collection, he called attention to the grave threat that the introduced mongoose posed to the survival of *C. subflavus* on Jamaica. Although no details were given, Stradling referenced ongoing efforts to preserve the species on a small island off the coast of Jamaica, which would have probably represented the first known attempt to conserve a wild snake population. Having seen the disappearance of the species from zoos and decreasing availability through reptile dealers during the 1880s, he was deeply concerned that the species was bound for extinction. Today, the species is listed as vulnerable by the IUCN (Gibson et al., 2021).

Snake Venoms

Despite earnest scientific investigations on snake venoms during the mid- to late-19th Century by S. Weir Mitchell and colleagues (Mitchell, 1861, 1868; Mitchell and Richardson, 1870; Mitchell and Stewart, 1898), an accurate understanding of these toxins and their effects at the time was marred largely by folklore and misunderstood well into the 20th Century (Klauber, 1956). Infatuated with snake venoms and recognizing the paucity of credible information on their properties, toxicological effects and medical treatment at the time, studying snake venoms became a cornerstone of Stradling’s ophiomania. Beyond documenting several cases of venomous snakebite (Stradling, 1893c, 1894l), he initiated a wide range of experiments with snake venoms beginning in the mid- to late-1870s, often using himself as the test subject.

Unconvinced that a curative therapy for venomous snakebite was possible, Stradling looked to inoculation—a successful weapon against smallpox developed almost a century earlier—as a potential solution to snakebite. His experiments were “... *not made with a view to the discovery of an antidote, but of a prophylactic, and were designed to discover a plan which shall render the body proof against the deadly effects of snake-bite*” (Stradling, 1880). Over the course of a decade Stradling self-administered “*carefully graduated*” inoculations of snake venom that left his arms badly scarred

from wrist to shoulder (Kenealy, 1898), noting that “*the autographs of such remain pretty thick upon me, and will be there till my dying day, and certainly the results of some of these were grave enough in all conscience*” (Stradling, 1894i). In 1880, he claimed to have been envenomed by five species (Stradling, 1880); when reflecting back on his history of experiments in 1898, he claimed to have sustained some 350 bites to date (Kenealy, 1898), although it is unclear if this referred exclusively to venomous taxa. Interestingly, with regards to free-handling venomous snakes, Stradling drew the line at sea snakes, noting “*I don’t mind picking up any honest land-snake, venomous or fangless, but I have a kind of reluctance to tackle a sea-snake with bare hands*” (Stradling, 1891b).

As detailed in an 1880 account (Stradling, 1880), Stradling’s most serious, or at least most publicized envenomation came from a 45 cm long rattlesnake—a “*Crotalus horridus*” that he acquired in Brazil (most likely a *C. durissus*). He had planned to have the snake bite his right wrist, but the snake escaped his manual grip and ended up biting him on the left forearm instead. The symptoms, which he recorded over the next several hours, left him unconscious with irregular respiration, paralysis of the lower extremities, delirium and extensive lymphatic swelling. Just a few weeks later, he was bitten by a much larger specimen of the same species with “*at least a month’s accumulation of fluid in his glands, and as active as a tropical day could make him*”, but experienced no severe effects and only localized disturbance at the site of the bite (Stradling, 1880); it is unclear if this may have been a dry bite, which is not uncommon in rattlesnakes (Silveira, 1995; de Rezende et al., 1998) and was probably unknown to occur at the time.

Many of Stradling’s peers from the medical community viewed his venom experiments as reckless and irresponsible, with some commenting that his work was “*... beyond the range of criticism*”, and that Stradling should “*... take more care of himself in the future than in the past*” (Stradling, 1880). In reference to his publicized bite, another colleague noted, “*It is hardly possible to conceive an experiment made under more reckless conditions—an experiment with a rattlesnake in solitude, in the middle of the night, and by an observer apparently ignorant of the rapidity with which the action of the poison once set up develops*” (Anonymous, 1880a). Some may have recognized the potential importance of his work, although it does not appear that anyone stepped up to Stradling’s calls for additional practitioners to join him in his efforts (Stradling, 1880).

Stradling appears to have been the first person to establish the theory of immunity to snake venom through inoculation (Kenealy, 1898), with his experiments predating Sewall’s (1887) investigation in the United States on preventative inoculation of rattlesnake venom using pigeons as test subjects by more than a decade. Self-inoculations with snake venom would later become adopted and popularized by Bill Haast of the Miami Serpentarium, who famously injected himself with

cocktails of snake venoms over the course of several decades as a professional venom extractor, which Haast credited with saving his life after sustaining numerous venomous snakebites over his lengthy career (Kursh, 1965; Collis, 2020). Stradling eventually suspended his self-inoculations around 1884 when he “*gave up bachelordom and settled down to general practice*” (Kenealy, 1898). Still, his reputation created problems for him more than a decade later when he was dropped by his medical insurance provider after the firm’s directors were alerted to an article that highlighted his private snake collection at home and his history of experiments with snake venoms (Stradling, 1895h)—the risk of insuring him was deemed too great (Anonymous 1895a).

Stradling also became interested in snake venom’s properties beyond its role in dispatching prey. In some experiments, he soaked scraps of meat, bits of hard-boiled egg and similar materials in *Vipera berus* venom to test its effects on biological tissues over time (Stradling, 1892n). Discovering that venom had the ability to dissolve the albumin of flesh, he suspected that in addition to killing prey, snake venom also played some role in digestion (Stradling, 1892n), a topic that has continued to receive attention more than a century later (Thomas and Pough, 1979; McCue, 2005; Bottrall et al., 2010). However, Stradling was careful not to draw direct comparisons with the digestive gastric juices of the stomach (Stradling, 1882b), concluding instead that the disintegrating power of venom may account for the local severity of venomous snakebites, citing the destruction of tissues that can lead to death, even in patients that have recovered from the primary toxicological effects of the bite (Stradling, 1882b).

A common misconception perpetuated throughout the 19th Century was that “hydrophobia” (= rabies) and venomous snakebite were similar conditions both caused by animal poisons, with some of the same or similar folklore therapies proposed for both (Anonymous, 1843). Stradling (1882g) dismissed this association on account of the marked differences between the two in terms of their effects and the timing, onset and duration of symptoms.

In addition to venomous snakes, Stradling (1882j) also took an interest in *Heloderma*, including the first living specimen of *H. horridum* to arrive in London. With essentially nothing known about the habits of the species, he discussed the venom of the species and the potential role it plays in the natural history of the species (1882j).

COLLECTIONS AND ACQUISITIONS

Traveling the world by steamer afforded Stradling near-limitless opportunities to acquire exotic reptiles and amphibians to maintain and study. In addition to field-collecting specimens himself, he also acquired animals from indigenous peoples, merchants and sailors traveling overseas, and animal dealers back in Europe. In Nicaragua, he traded miscellaneous supplies for specimens with indigenous rubber plantation workers, noting that “*...candle-boxes and coils of galvanised wire*



Fig. 5. Stradling posing with a *Boa constrictor* in his personal collection (from: Stradling, 1896a).

represented my only naturalist stock in trade, but I managed to get some glorious snakes” (Kenealy 1898). Fanciers of his popular writings would also occasionally send him specimens. In one instance, some boys in California tried sending him a crate of horned lizards (*Phrynosoma*) and some snakes that ended up getting stranded en route in New York and eventually redirected to a local zoo instead (Stradling, 1891d). Stradling also regularly exchanged animals with various European zoos including the ZSL, Antwerp Zoo, Hamburg Zoo and Cologne Zoo, among others (Stradling, 1892c).

Many of the specimens Stradling brought back to England were maintained in his private collection (Fig. 5), but he also regularly gifted specimens to the ZSL. He also maintained regular correspondence with Albert Günther and George Boulenger at the British Natural History Museum (BNHM), and donated deceased specimens to their collection (Hopkinson, 1895). Several snakes from his personal collection were also loaned out to various plays and stage performances throughout England, with specimens swapped out every few weeks by Stradling to allow for feeding (Anonymous, 1895b; Stradling, 1895e). In addition to reptiles and amphibians, he also brought back an assortment of



Fig. 6. Illustration from the description of *Homoeomma stradlingi*, a Brazilian tarantula named after Stradling, who collected the type specimen and gifted it to the ZSL's zoological gardens (from: Pickard-Cambridge, 1881).

mammals, birds and invertebrates for the ZSL, including a Brazilian tarantula that was later determined to be a new species and named in his honor (Pickard-Cambridge, 1881; Fig. 6). Stradling would also send animals to his father (Stradling, 1894a), including some that almost perished when a fire broke out at the household in 1878 (Anonymous, 1878).

Many of the exotic reptile and amphibian species acquired by Stradling had never been displayed by the ZSL and had likely never been kept before in captivity. One notable example was an Orange-legged Leaf Frog (*Pithecopus hypochondrialis*)—believed to be the first specimen of its kind to reach Europe alive—that he acquired in Pernambuco and gifted to the ZSL in 1881. Boulenger (1882) found the specimen to be exceptional as it provided insight into the species' vivid coloration in life, which was very different from what he had observed in the dull and faded spirit-preserved specimens at the museum. The specimen also yielded behavioral

insights on how the vivid orange markings on the limbs and flanks were concealed and hidden while the animal slept on leaves during the day (Fig. 7). Other noteworthy species brought to Europe by Stradling included bushmasters (*Lachesis* sp.), lanceheads (*Bothrops* sp.), West Indian tree boas (*Corallus* sp.), Broad-snouted Caiman (*Caiman latirostris*), Red Worm Lizards (*Amphisbaena alba*) and False Coral Snakes (*Oxyrhopus* sp.), among others (Anonymous, 1880b, 1883a, 1896a; Stradling, 1882h; 1895d).

Disturbed by the alarmingly high mortality of snakes brought into captivity at the time, Stradling called attention to this issue, noting that “... not one in 50 of all the specimens caught survive—even those which have sustained no injury in becoming prisoners, and which reach comfortable quarters in zoological gardens or the vivaria of amateurs” (Stradling, 1895b). Finding these results unacceptable, he developed and described safer and more effective packing and shipping methods for snakes that sought to increase survivorship over their sometimes several weeks- or months-long oceanic journeys (Stradling, 1894d, 1882h). Through a series of amusing articles, Stradling (1891e, 1892d,e,f,g,h) also recounted many of the animal escapes and mishaps that occurred over his years of collecting, transporting and keeping reptiles and amphibians, and in the collections of others.

HERPETOLOGICAL HUSBANDRY

“We do not burn ophiologists now, certainly; and a person may even have living serpents in his house without being considered mad or morbidly desirous of a reputation for eccentricity, as he would have been not long ago.” (Stradling, 1882e).

A new era of reptile and amphibian keeping emerged in England during the late 19th Century, which led to an increase in the activity’s popularity and the rapid accumulation of publications covering the subject. While Bateman’s (1897) *The Vivarium* is frequently celebrated as the first major English language work dedicated to the subject of herpetological husbandry, by the time of its release in 1897, Stradling had already authored numerous articles covering various aspects of reptile and amphibian care including an important series of seven accounts appearing in *The Zoologist* titled “*On the treatment of snakes in captivity*” (1882e, 1883a,b,c,d,e,f). In these and other articles (Stradling, 1882k, 1890e, 1891f, 1892i,l, 1894d,f, 1895b,h), Stradling described his experiences with establishing and caring for a broad array of species, the availability



Fig. 7. Illustration depicting the first living *Pithecopus hypochondrialis* to arrive in Europe, collected by Stradling, maintained at the ZSL, and studied by Boulenger (from: Boulenger, 1882).

of certain species to zoos and hobbyists, new techniques for their care and management, and identified problematic aspects of their husbandry and medical care. Bateman’s (1897) seminal work references many of Stradling’s published and unpublished observations and developments. Stradling prided himself “... upon the fact that I rear and keep many delicate species which invariably die in zoological gardens and other menageries” (Stradling, 1895h), and saw it as a personal responsibility to publish and share his keeping experiences, especially after receiving frequent correspondence from strangers asking for information and advice on keeping reptiles, particularly snakes.

It is unclear just how many species Stradling personally maintained over his lifetime, but it is evident from his writings that he maintained an extensive collection of snakes and other reptiles and amphibians at home and aboard his ship over the span of three decades. In the drawing room of his home in Watford, taxidermied snakes and lizards, pinned moths and spiders, and preserved snake skins adorned the walls, and glass enclosures housing a myriad of live snakes surrounded the room's perimeter. With his residence doubling as his private medical practice, a patient waiting in this parlor for Stradling's services was said to have "*many distractions from his diagnosis*" (Kenealy, 1898; Stradling, 1895h).

Stradling developed many innovative techniques to assist with the husbandry of reptiles. For example, he began using lumps of sugar inside lizard enclosures to attract flies, noting that the lizards (species not identified) quickly learned to sit and wait near the sugar for prey (Stradling, 1882m). He also developed new techniques for feeding inappetent snakes (see below) and various approaches for keeping captives warm in cooler climates. Here, it is important to recognize that Stradling and his contemporaries were keeping reptiles years and even decades prior to the widespread adoption of household electricity in the UK and had to devise creative ways of providing supplemental heat to their charges, especially in the temperate climate and cold winters of England. Several of his articles offered detailed instructions on how to design, construct and heat vivaria (Stradling, 1882l, 1883a,b,c,f, 1894f), and discussed many of the challenges associated with providing adequate heat, including those experienced by the ZSL and Jardin des Plantes (Stradling, 1883a,b,c, 1894f). Some of his efforts to maintain appropriate temperatures included relying on large cisterns to store boiling water (Stradling, 1883b) and developing methods for conserving heat through slowing the rate of heat loss by covering enclosures with blankets and insulating enclosures and hot water cisterns with materials such as felt, emphasizing that "*every particle of heat must be hoarded*" (Stradling, 1883b,c). Stradling noted having to replenish water in the cisterns every three days, and adding kettles of boiling water twice daily. Along similar lines, he discussed the challenges and difficulties of keeping snakes warm while traveling with them for his public lectures, such as having to stay up all night to stoke the fireplace in order to keep the room warm enough for the animals (Kenealy, 1898).

Obesity continues to be a common health issue in captive snakes today which is largely attributed to overfeeding in terms of both quantity and frequency. As early as 1895, Stradling recognized and emphasized that snakes required minimal amounts of food to support their "*lowly-vitalized existence and even to provide for growth*". He added that *N. helvetica* "... *does fairly well if it gets six good frogs a year*" and that a *Vipera* in his collection "*has contented itself with four medium-sized frogs per annum during the eight years that it has been in my possession, though it may have swallowed ten times that number had it chosen to avail itself of its privileges*", noting that snakes when fed frequently "... *grow*

to dimensions not exemplified amongst those remaining in their native haunts, owing to the excess and regularity of the supply of nourishment" (Stradling, 1895b, 1896a).

Stradling may have been the first English-language author to provide detailed information on the keeping of venomous snakes in captivity, although he discouraged private keepers (especially minors) from doing so (Stradling, 1892i). Several of his articles discussed how to safely handle snakes and how to tame them (Stradling, 1892i,j,k, 1895d). While most of his writings on captive husbandry focused on snakes, Stradling also presented information on the care of additional reptile and amphibian species. For example, he provided what may be some of the earliest husbandry and breeding information on crocodilians (Stradling, 1889a) including his own experiences with successfully incubating American Alligator (*Alligator mississippiensis*) eggs over heated steam pipes and using a brooder hen to successfully incubate caiman eggs that were brought to him in Nicaragua (Stradling, 1883n, 1889c, 1894c).

Reptile and amphibian keeping efforts at the time were focused chiefly on establishing newly acquired animals and keeping them alive, rather than captive breeding. Nevertheless, Stradling did describe several reproductive events in his collection and at the ZSL; most of which probably represented cases of wild-mated females laying eggs or giving birth shortly after arriving in captivity rather than true captive-breeding success. It appears that most of these events involved live-bearing species such as rattlesnakes (Stradling, 1894l), West Indian boas (*Chilabothrus* sp.) (Stradling, 1895f), tree boas (*Corallus* sp.) (Stradling, 1895d,f) and Japanese Keelbacks (*Hebius vibakari*) (Stradling, 1893f); Stradling (1882n) had poor success with incubating and hatching oviparous species, most likely due to various misguided attempts at their incubation such as inside a tin case inside the lining of his waistcoat. Still, he did manage to hatch a few exotic species (species not identified) by placing their eggs in the rafters of a house in the tropics, and in moistened cotton-wool in the warm engine room of a steamer during his travels (Stradling, 1882n).

Stradling published various longevity records for reptiles and amphibians maintained in captivity during the late 19th Century (Stradling, 1883d,e), including some records that may not vary much from those observed in the modern day. Some of the more exceptional early records noted by him include an 8 m long Reticulated Python (*Malayopython reticulatus*) that was still living at the London Zoological Gardens after 19 years (Stradling, 1895b), a Two-toed Amphiuma (*Amphiuma means*) that had been living at the zoological gardens for more than 25 years (Stradling, 1895b), and a Cane Toad (*Rhinella marina*) that lived in his personal collection and then later at the ZSL for a combined 20 years (Stradling, 1891f).

With essentially nothing known about reptile veterinary medicine at the time, Stradling (1895b) discussed various pathological conditions that he encountered in captive snakes. Among them is what appears to be one of the earliest documented cases of snake mite (*Ophionyssus natricis*) infection (referred to by Stradling as "lice"), which he

also noted the difficulty of ridding them from a collection and the importance of quarantining new animals (Stradling, 1892b)—a measure that is still rarely practiced by private reptile keepers today, some 130 years later. Stradling also linked dystocia, the pathological retention of eggs, to poor nesting conditions for females (Stradling, 1883f); dystocia and nesting distress continue to be overlooked and problematic aspects of present-day herpetological husbandry (e.g., Mendyk et al., 2013). Mouth canker (= stomatitis), can be an insidious and debilitating disease in snakes and other reptiles, and was once considered a death sentence for snakes. Stradling (1895b) discussed possible underlying agents for the disease (including tuberculosis) and attributed the condition to exposure to cold temperatures; today, the condition is less-frequently encountered in captive reptiles, probably due to improved thermal husbandry practices.

MISGUIDED CLAIMS AND QUESTIONABLE PRACTICES

Considering just how little was known about the biology, husbandry and medical management of reptiles and amphibians at the time, it is not surprising that many of Stradling's assertions, practices and conclusions have not stood the test of time in terms of their accuracy, appropriateness or ethics. For example, Klauber (1956) questioned several of Stradling's assertions such as the claim that he heard a green snake scream where it was mistaken for the cries of a child, or that British snakes grow to much larger sizes when moved to tropical environments.

During his travels with the Royal Mail Steam-Packet Company, Stradling released an unspecified number of *Natrix helvetica*, a natricid native to England, at sites in South America as well as the Philippines (Manila) to test whether the temperate species could adapt to, and survive in warmer tropical climates (Stradling, 1892c). He later acknowledged the dangers of introduced species (Stradling, 1895f) and the recklessness of his actions, stating, "*This, by the way, as I know now, was a foolish thing to do... You can't tell what disasters may follow the introduction of a plant or creature apparently perfectly harmless in itself*" (Stradling, 1892c).

Kenealy (1898) described a *Rhinella marina* living in Stradling's private collection that purportedly suffered from "dyspepsia" (= indigestion), a likely consequence of inappropriate husbandry practices and environmental conditions. In an effort to manage this condition, for several years this animal was fed pieces of meat and mice that had been envenomated by a rattlesnake (Stradling, 1891f), which Stradling believed had "*very valuable predigestive qualities*" (Kenealy, 1898).

Perhaps not that surprising given his storied history of self-inflicted envenomations, Stradling free-handled venomous snakes. In 1881, he offered to send a particularly 'tame' rattlesnake to his contemporary Catherine C. Hopley, noting "*I have a very nice tame rattlesnake between four and five feet long in good condition and feeding well, which I shall be*



Fig. 8. Stradling and his "cramming" method of force-feeding inappetent snakes (from: Stradling, 1896a).

delighted to send you... It has got so tame that you might handle it without fear at any time you wished to investigate any part of it". Hopley declined the offer, and the specimen was apparently later sacrificed by Stradling for his experiments, which included him swallowing some of the contents of its venom gland to "*convince two or three challenging sceptics that he could do this with impunity*" (Hopley, 1882).

Having encountered inappetence in many of the snakes he acquired, especially large boids and pythons, Stradling developed a forced-feeding technique that he believed was the key to successfully keeping specimens alive in captivity. The technique, which he termed as "cramming", involved forcibly opening the animal's mouth, then pushing food items down the throat with the aid of some form of plunger (Kenealy, 1898; Stradling, 1892c, 1895b,h; Figs. 8 & 9). A large boa or python would typically get crammed with 3 lbs of beef or horse meat once a month; interestingly, Stradling would also include feathers or even tie string around the meat, suspecting that such roughage assisted with mechanical digestion and nutrition in the absence of fur and bones (Stradling, 1895h). For young specimens, a raw beef tea mixed with arrowroot or curdled milk was also included. A practice similar to Stradling's "cramming" technique (perhaps co-opted) was later used and popularized in American zoological parks by Raymond Ditmars and others, captured in various photographs and publicized feeding events (Fig. 10; see also Burger, 2018). According to Stradling, one of the purported benefits of "cramming" was that little fecal material was produced when snakes were fed raw meat; additionally, the uric acid which was produced in larger quantities could be sold to chemistry laboratories for 5 to 10 shillings per pound (Stradling, 1895b). Although he claimed to be able to sustain specimens in this manner for years, it is likely that in many instances the practice caused more harm than good. Forcing animals with compromised digestive tracts to eat could be injurious, as would regularly prying open their mouths manually.

Although there still remains much to be learned, great strides have been made in understanding the behavioral com-

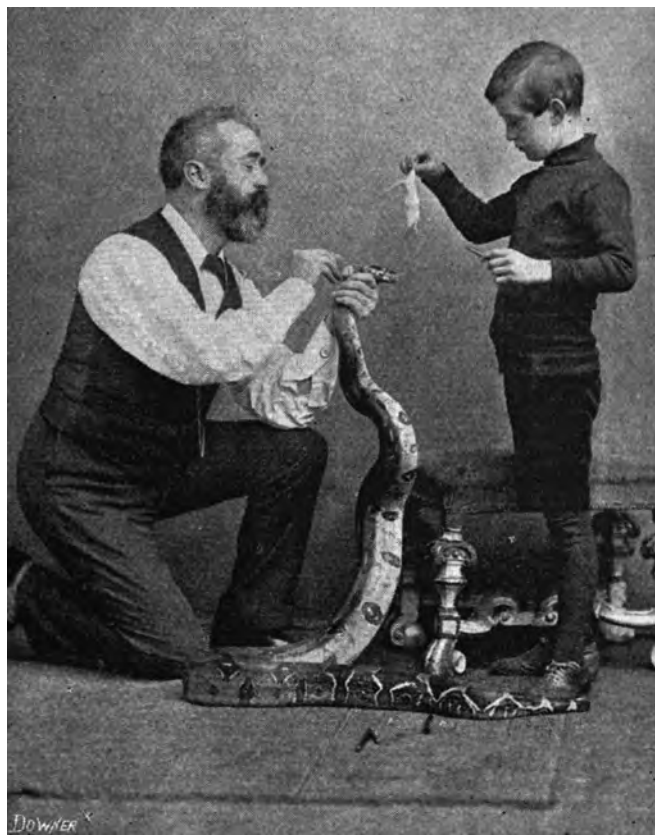


Fig. 9. Stradling and his son force-feeding a *Boa constrictor* (from: Stradling, 1896a).

plexity and intelligence of snakes in recent years, revealing that they are capable of a wide range of specialized and complex behaviors (see Doody et al., 2021). For well over a century, however, there had been little consideration of their intelligence. Stradling was not impressed by their cognitive abilities as a group, possibly attributed in part to the cold temperatures and associated inactivity of the individuals being kept and their overall health, noting that “... *their brain-power is so limited that the marvel is how they have ever managed to survive in the great competition, especially*

when one finds that they are still on the ‘ascending curve’ of evolution.” (Stradling, 1895e) and that “... *the intelligence of the whole of the Ophidia is so low that no kind of training or education is possible*” (Stradling, 1895d). He did, however, recognize some semblance of intelligence in the King Cobra (*Ophiophagus hannah*), noting “*though lazy, it is said to be distinctly aggressive in its wild state, and is perhaps the most intelligent of the serpent Order*” (Stradling, 1894h, 1895d).

MISCELLANY

Stradling claimed to have been almost killed by a nearly 5 m long African Rock Python (*P. natalensis*) at the Antwerp Zoo while attempting to treat it for a case of mouth canker (Stradling, 1882i, 1894i,j,k). While restraining its head, the snake coiled around his upper body and began to constrict, causing him to momentarily lose consciousness; the zoo-keeper that had been tasked with assisting him had fled and closed the exhibit door behind him, leaving Stradling struggling inside alone with several other large pythons sharing the space. Although dubious, according to Stradling (1894k), the snake purportedly broke two of his ribs, pressing the sharp ends into his lung, and his left arm was paralyzed for a week.

Having preserved and prepared many mounted specimens including those displayed in his home (Kenealy, 1898), Stradling authored several articles on how to make use of deceased specimens. Together, they outlined techniques for skinning snakes, taxidermy and preparing skeletal mounts (Stradling, 1883g,h,i, 1892a).

DEATH(S)

In May of 1896, reports began to circulate in various newspapers and medical news journals in Europe and the United States that claimed Stradling had died from a venomous snakebite while traveling in Ceylon (Anonymous, 1896g,h,i; Fig. 11). According to these accounts, he had allegedly been bitten by a Russel’s Viper (*Daboia russelii*) while carrying out scientific investigations on behalf of the ZSL, and died

six hours later. This turned out to be a hoax, as Stradling was aboard a steamer on his way back home from Marseilles at the time of the reporting (Anonymous 1896c,d). It is unclear, but possible that the story may have stemmed from an actual bite sustained while in Ceylon that he recovered from, according to one correspondent who claimed familiarity with the incident (Anonymous, 1897). Stradling claimed that the story was put out to “*cause annoyance*”, that the perpetrator was well-known, and that his friends in Ceylon would be able to “*exercise such punitive measures as may meet the case*” (Anonymous, 1896e). Interestingly, an apparent animal welfare activist used the reporting of Stradling’s death



Fig. 10. Reptile curator Raymond Ditmars and zookeeper staff force-feed a large Reticulated Python (*Malayopython reticulatus*) at the New York Zoological Park (now the Bronx Zoo) using a method similar to Stradling’s “cramming” technique.

as an opportunity to argue against the keeping of venomous snakes in captivity and call upon the Royal Society for the Prevention of Cruelty to Animals (RSPCA) to step in to enact such changes—not for the safety of the keeper or welfare of the snake, but because of the purported cruelty of feeding live rodents to them (Anonymous, 1896f).

Stradling died just a few years later in 1902, not from a venomous snakebite as many might have anticipated or expected given his history of such incidents, but rather a cocaine overdose. Suffering from sciatica as a result of an earlier accident, he had become addicted to narcotics and turned to self-injecting cocktails of cocaine and morphine intravenously to alleviate the pain (Anonymous, 1902a,b). Scant information is available about his activities and whereabouts during the last few years of his life; however, a brief correspondence published in 1900 by someone familiar with Stradling noted that he had apparently “*broke down completely in health, some time ago, and has since been quite incapacitated for work*” (Anonymous, 1900). At the time of his death, Stradling was no longer practicing medicine, had been estranged from his wife, and was living out of a hotel room in London (Anonymous, 1902a). A record of more than a dozen former addresses in the last few years leading up to his death posted by debt collectors (Anonymous, 1902c) suggests that he had become destitute—a potential consequence of his substance abuse. He was found dead kneeling beside his bed with multiple syringe marks on his arms and bottles of cocaine and morphine strewn about; the medical examiner ruled the verdict as “*death by misadventure*” (Anonymous, 1902a,b).

CONCLUDING REMARKS

For someone so prolific and dedicated to the study of reptiles and amphibians, it is remarkable that many of Stradling’s discoveries, insights and publications have been largely overlooked by the field of herpetology. This may be largely due to his tendency to publish his observations and experiences in popular magazines, although he did publish numerous works in prominent scientific journals as well. Although admired by the general public, it is also possible that his reputation for reckless experimentation with snake venoms, which brought him much consternation within the medical community, may have also cast him as an eccentric, outsider and outcast within the herpetological community where he may not have been cordially welcomed either. With many of his scientific contributions overlooked, Arthur Stradling’s greatest herpetological legacy may have instead been his advocacy for snakes and other reptiles and amphibians and the impact he had on the general public. Having dedicated much of his adult life to increasing knowledge and promoting awareness and respect for herpetofauna and especially snakes, he established himself as one of the first great popularizers of the group. His struggles with substance abuse tragically cut short the life of a highly passionate and productive devotee to the study

—Arthur Stradling’s recent death from snakebite in Ceylon was a peculiarly sad affair. He was engaged in pursuing herpetological studies in the neighborhood of Bogawantalawa when he came across a specimen of the Russel viper—known to the natives as the “tic polonga”—a reptile of the deadliest variety. The doctor was bitten by this terror of Ceylon, and died six hours afterward. Dr. Stradling was making investigations on behalf of the London Zoological Gardens.

Fig. 11. False reports appearing in newspapers and medical news journals in May 1896 claimed that Stradling had died of a snakebite while traveling in Ceylon (from: the *New York Times*, 31 May 1896).

of reptiles and amphibians which undoubtedly deprived the fields of herpetology and herpetological husbandry of many further insights and advancements.

ACKNOWLEDGMENTS

I wish to thank Breck Bartholomew for his invaluable assistance, Chris Reynolds for generously providing photographic material and additional information, Avishai Shuter and Jim Murphy for providing valuable information and other courtesies, and Jon Coote and the Smithsonian Institution libraries for their assistance with sourcing obscure literature. Lastly, I thank Jon Coote, Mark O’shea and Michael Burger for helpful comments on an earlier draft of this manuscript.

REFERENCES

- Adler, K. (ed.). 2007. *Contributions to the History of Herpetology*. Vol. 2. Society for the Study of Amphibians and Reptiles, Ithaca. 389 p.
- Adler, K. (ed.). 2012. *Contributions to the History of Herpetology*. Vol. 3. Society for the Study of Amphibians and Reptiles, Ithaca. 564 p.
- Adler, K. (ed.). 2014. *Contributions to the History of Herpetology*. Vol. 1 (revised and expanded). Society for the Study of Amphibians and Reptiles, Ithaca. 272 p.
- Anonymous. 1843. On the treatment of hydrophobia. *Boston Medical and Surgical Journal* 28(7):132.
- Anonymous. 1849. The new reptile house. *Illustrated London News* 14(374):384.
- Anonymous. 1851. Devon, Newton Abbot District. England and Wales, Birth Registration Index, Third Quarter (July, August & September) 10:706. Last accessed: 4 February 2022.
- Anonymous. 1875. Medical news. *Medical Times and Gazette* 1875(1):134.
- Anonymous. 1878. District News – The late fire. *Western Times*, 3 December 1878:6.
- Anonymous. 1880a. A rattlesnake bite. *The Lancet* 1880(2):550–551.
- Anonymous. 1880b. List of additions to the society’s menagerie during the year 1880. *Proceedings of the Zoological Society of London* 1880:697–720.
- Anonymous. 1883a. *List of the Vertebrates Animals Now or Lately Living in the Gardens of the Zoological Society of London*. Eighth Edition. Longmans, Green, Reader and Dyer, London. 682 p.

- Anonymous. 1883b. The Zoological Society's Gardens. *Illustrated London News* 83(2316):244.
- Anonymous. 1887a. Lecture on snakes. *Southampton Herald*, 26 October 1887:3.
- Anonymous. 1887b. A creepy contribution – Stradling on snakes. *Hampshire-Portsmouth Telegraph*, 30 June 1887:9.
- Anonymous. 1887c. Snakes and snake-charming. *Leeds Mercury*, 16 December 1887:3.
- Anonymous. 1895a. Snakes and sickness assurance. *Insurance Managers' and Agents' Magazine* 59(616):911.
- Anonymous. 1895b. A curiosity. *Nottingham Evening Post*, 6 August 1895:2.
- Anonymous. 1896a. *List of the Vertebrated Animals Now or Lately Living in the Gardens of the Zoological Society of London*. Ninth Edition. Longmans, Green, and Co., London. 724 p.
- Anonymous. 1896b. Dr. Arthur Stradling queer collection of snakes. *Manchester Courier and Lancashire General Advertiser* 72(12378):14.
- Anonymous. 1896c. Dr. Arthur Stradling. *Sheffield Daily Telegraph*, 29 May 1896:4.
- Anonymous. 1896d. Dr. Arthur Stradling. *Leeds Mercury*, 13 June 1896:5.
- Anonymous. 1896e. A few “snaky” incidents. *Nottinghamshire Guardian*, 13 June 1896:6.
- Anonymous. 1896f. Tea table talk. *Leeds Mercury*, 23 May 1896:4.
- Anonymous. 1896g. Death from snake-bite. *Berrow's Worcester Journal*, 23 May:5.
- Anonymous. 1896h. A martyr to science. *Sheffield Evening Telegraph*, 18 May:2.
- Anonymous. 1896i. Fatal experimentation. *The Medical Age* 14:530.
- Anonymous. 1897. Experiments with snake venom. *The Medical World* 15(4):143–144.
- Anonymous. 1900. Correspondence. *The Boy's Own Paper* 22(1109):432.
- Anonymous. 1902a. Cocaine poisoning. *The Medical Press* 73:587.
- Anonymous. 1902b. Doctor's fatal drug habit. *Nottingham Evening Post*, 21 May 1902:3.
- Anonymous. 1902c. Notices: William Arthur Stradling, deceased. *Reading Mercury*, 6 September:6.
- Bateman, G.C. 1897. *The Vivarium: Being a Practical Guide to the Construction, Arrangement, and Management of Vivaria*. L. Upcott Gill, London. 424 p.
- Bottrall, J.L., F. Madaras, C.D. Biven, M.G. Venning, and P.J. Mirtschin. 2010. Proteolytic activity of elapid and viperid snake venoms and its implications to digestion. *Journal of Venom Research* 1:18–28.
- Boulenger, G.A. 1882. Notes on a South-American frog lately living in the Society's Gardens. *Proceedings of the Zoological Society of London* 50(1):264–265.
- Burger, R.M. 2018. *The Dragon Traders: A Collective History of the Reptile Trade in America and the Age of Herpetoculture*. Parador Press. 473 pp.
- Collis, A. 2020. William E. “Bill” Haast: Venom collector and herpetologist. *IRCF Reptiles & Amphibians* 27(1):116–119.
- Coote, J. 2019a. Snakes, their treatment, care & management in captivity by Dr. Arthur Stradling, 1882 & 1883. *The Herptile* 44(1):34–40.
- Coote, J. 2019b. Snakes, their treatment, care & management in captivity by Dr. Arthur Stradling, 1882 & 1883. *The Herptile* 44(2):42–53.
- de Rezende, N.A., F.M. Torres, M.B. Dias, D. Campolina, C. Chavez-Olortegui, and C.F.S. Amaral. 1998. South American rattlesnake bite (*Crotalus durissus* sp) without envenoming: Insights on diagnosis and treatment. *Toxicon* 36(12):2029–2032.
- Doody, J.S., V. Dinets, and G.M. Burghart. 2021. *The Secret Social Lives of Reptiles*. Johns Hopkins University Press, Baltimore. 400 p.
- Engel, T.R. 1997. Seed dispersal and plant regeneration by snakes? *Ecotropica* 3:33–41.
- FitzSimons, F.W. 1933. *Opening the Psychic Door, Thirty Years' Experiences*. 2nd ed. Hutchinson & Co., London. 304 pp.
- Glaudas, X., and G.J. Alexander. 2016 (2017). A lure at both ends: Aggressive visual mimicry signals and prey-specific luring behaviour in an ambush-foraging snake. *Behavioral Ecology and Sociobiology* 71(1):1–7.
- Gibson, R., S.B. Hedges, and B.S. Wilson. 2021. *Chilabothrus subflavus*. *The IUCN Red List of Threatened Species* 2021: e.T7826A18979286.
- Hansknecht, K.A., 2008. Lingual luring by mangrove saltmarsh snakes (*Nerodia clarkii compressicauda*). *Journal of Herpetology* 42(1):9–15.
- Hopkinson, J. (ed.). 1895. Bye meeting, 21st April, 1894. *Transactions of the Hertfordshire Natural History Society and Field Club* 8:xxi–xxii.
- Hopley, C.C. 1882. *Curiosities and Wonders of Serpent Life*. E.P. Dutton & Co., New York. 614 p.
- Hudson, W.H. 1893. The serpent's tongue. *The Fortnightly Review* 54(320):198–206.
- Kahmann, H. 1932. Sinnesphysiologische Studien an Reptilien I: Experimentelle Untersuchungen über das Jakobsonsche Organ der Eidechsen und Schlangen. *Zoologische Jahrbücher Abteilung für allgemeine Zoologie und Physiologie der Tiere* 51:173–238.
- Kahmann, H. 1934. Zur Chemorezeption der Schlangen (ein Nachtrag). *Zoologischer Anzeiger* 107:249–263.
- Kenealy, A. 1898. A celebrated snake savant Dr. Arthur Stradling, C.M.Z.S. *The Ludgate* 5:567–573.
- Klauber, L.M. 1956. *Rattlesnakes*. University of California Press, Berkeley and Los Angeles. 1476 p.
- Kursh, H. 1965. *Cobras in his Garden*. Harvey House, New York. 192 p.
- Mario-da-Rosa, C., A.D. Abegg, L. Malta-Borges, A.F. Righi, P.S. Bernarde, S.Z. Cechin, and T.G.D. Santos. 2020. A fisherman's tale: Activity, habitat use and the first evidence of lingual lure behavior in a South American snake. *Salamandra* 56(1):39–47.
- McCue, M. 2005. Enzyme activities and biological functions of snake venoms. *Applied Herpetology* 2(2):109–123.
- Mendyk, R.W., A.L. Newton, and M. Baumer. 2013. A retrospective study of mortality in varanid lizards (Reptilia: Squamata: Varanidae) at the Bronx Zoo: Implications for husbandry and reproductive management in zoos. *Zoo Biology* 32(2):152–162.
- Mitchell, S.W. 1861. *Researches Upon the Venom of the Rattlesnake, with an Investigation of the Anatomy and Physiology of the Organs Concerned*. Smithsonian Contributions to Knowledge. Smithsonian Institution, Washington. 145 p.
- Mitchell S.W. 1868. Experimental contributions to the toxicology of rattle-snake venom. *New York Medical Journal* 6(4):289–322.
- Mitchell, S.W., and J.G. Richardson. 1870. Observations on poisoning with rattlesnake venom. *American Journal of the Medical Sciences* Ser. 2. 59:317–323.
- Mitchell, S.W., and A.H. Stewart. 1898. A contribution to the study of the effect of the venom of *Crotalus adamanteus* upon the blood of man and animals. *Memoirs of the National Academy of Sciences* 8:3–14, 6 plates.

- Pickard-Cambridge, O. 1881. On a new spider of the family of Theraphosidae. *Proceedings of the Zoological Society of London* 49(3):682–685.
- Reiserer, R.S., G.W. Schuett, and H.W. Greene. 2018. Seed ingestion and germination in rattlesnakes: Overlooked agents of rescue and secondary dispersal. *Proceedings of the Royal Society B* 285: 20172755.
- Saville-Kent, W. 1897. *The Naturalist in Australia*. Chapman & Hall, London. 443 p.
- Schmidt, K.P. 1955. Herpetology. Pp. 591–628 in: E.L. Kessel (ed.), *A Century of Progress in the Natural Sciences 1853–1953*. California Academy of Sciences, San Francisco.
- Sewall, H., 1887. Experiments on the preventive inoculation of rattlesnake venom. *Journal of physiology*, 8(3-4):203–210.
- Silveira, P.V., 1995. Venomous snake bite without clinical envenoming ('dry-bite'). A neglected problem in Brazil. *Tropical and Geographical Medicine* 47(2):82–85.
- Stradling, A. 1879. Pernambuco. Sub-enclosure in Enclosure in No. 6. Copy of Correspondence and Papers Relating to Hospital for British Seamen in Foreign Ports. *Parliamentary Papers* 64(348):24.
- Stradling, A. 1880. Experiments on snake-bite. *The Lancet* 1880(2):706.
- Stradling, A. 1882a. The desquamation and digestion of serpents, from a new point of view. *The Zoologist* Ser. 3. 6(62):50–55.
- Stradling, A. 1882b. Snake poison as a pepsine. *The Zoologist* 6(63):118.
- Stradling, A. 1882c. Snakes venomous and non-venomous. *The Zoologist* 6(64):140–145.
- Stradling, A. 1882d. The incubation of serpents. *The Zoologist* 6(69):345–351.
- Stradling, A. 1882e. On the treatment of snakes in captivity. *The Zoologist* 6(72):448–456.
- Stradling, A. 1882f. Notes about snakes. *Nature* 25(642):377–378.
- Stradling, A. 1882g. Hydrophobia and snakebite. *Nature* 26(662):221–222.
- Stradling, A. 1882h. Snake-anecdotes. In two parts. Part I. *Chambers' Journal* 19(966):414–417.
- Stradling, A. 1882i. Snake-anecdotes. In two parts. Part II. *Chambers' Journal* 19(969):462–464.
- Stradling, A. 1882j. The heloderm, a venomous lizard. *Chambers' Journal* 19(979):626–627.
- Stradling, A. 1882k. A slight scare. *Chambers' Journal* 19(987):755–757.
- Stradling, A. 1882l. Snakes, and how to tame them. *The Boy's Own Paper* 5(195):10–11.
- Stradling, A. 1882m. Out of the way pets. Part II. *The Boy's Own Paper* 5(199):61–62.
- Stradling, A. 1882n. Snakes' eggs. *The Boy's Own Paper* 5(200):86.
- Stradling, A. 1882o. Snakes' eggs. Part II. *The Boy's Own Paper* 5(202):107.
- Stradling, A. 1883a. On the treatment of snakes in captivity. *The Zoologist* 7(73):18–24.
- Stradling, A. 1883b. On the treatment of snakes in captivity. *The Zoologist* 7(74):61–68.
- Stradling, A. 1883c. On the treatment of snakes in captivity. *The Zoologist* 7(75):103–114.
- Stradling, A. 1883d. On the treatment of snakes in captivity. *The Zoologist* 7(77):205–213.
- Stradling, A. 1883e. On the treatment of snakes in captivity. *The Zoologist* 7(78):242–251.
- Stradling, A. 1883f. On the treatment of snakes in captivity. *The Zoologist* 7(79):284–291.
- Stradling, A. 1883g. What to do with a dead snake Part I. *The Boy's Own Paper* 5(214):334–335.
- Stradling, A. 1883h. What to do with a dead snake. Part II. *The Boy's Own Paper* 5(215):351.
- Stradling, A. 1883i. What to do with a dead snake. Part III. *The Boy's Own Paper* 5(216):363.
- Stradling, A. 1883j. Spiritualism at home. *The Boy's Own Paper* 5(222):459–460.
- Stradling, A. 1883k. Spiritualism at home. Part II. *The Boy's Own Paper* 5(223):471.
- Stradling, A. 1883l. Spiritualism at home. Part III. *The Boy's Own Paper* 5(224):495–496.
- Stradling, A. 1883m. A sixty-foot fall, and the peculiar sensation accompanying it. *Saint Louis Post-Dispatch*, 8 February 1883:7.
- Stradling, A. 1883n. Maternal instinct. *Hardwicke's Science Gossip* 19:65.
- Stradling, A. 1887. On the administration of carbonate of lime as a means of arresting the growth of cancerous tumours. *The Lancet* 129(3326):1108.
- Stradling, A. 1889a. Alligators and crocodiles. Part I. *The Boy's Own Paper* 12(560):4–5.
- Stradling, A. 1889b. Alligators and crocodiles. Part II. *The Boy's Own Paper* 12(561):28–30.
- Stradling, A. 1889c. Alligators and crocodiles. Part III. *The Boy's Own Paper* 12(562):42–43.
- Stradling, A. 1889d. Alligators and crocodiles. Part IV. *The Boy's Own Paper* 12(563):58–59.
- Stradling, A. 1889e. A land of death. *Longman's Magazine* 15:176–185.
- Stradling, A. 1890a. Mistakes about snakes. Part I. *The Boy's Own Paper* 13(615):58–59.
- Stradling, A. 1890b. Mistakes about snakes. Part II. *The Boy's Own Paper* 13(616):69.
- Stradling, A. 1890c. Mistakes about snakes. Part III. *The Boy's Own Paper* 13(617):90.
- Stradling, A. 1890d. Mistakes about snakes. Part IV. *The Boy's Own Paper* 13(618):106–108.
- Stradling, A. 1890e. Glass-snakes. *The Boy's Own Paper* 13(621):157–158.
- Stradling, A. 1890f. My first adventure. *The Boy's Own Paper* 13(624):200–203.
- Stradling, A. 1890g. A barking frog. *The Boy's Own Paper* 13(Christmas Number):52–53.
- Stradling, A. 1891a. Sea-serpents. Part I. *The Boy's Own Paper* 13(632):335.
- Stradling, A. 1891b. Sea-serpents. Part II. *The Boy's Own Paper* 13(633):346–347.
- Stradling, A. 1891c. Sea-serpents. Part III. *The Boy's Own Paper* 13(634):362–363.
- Stradling, A. 1891d. The "horned toad". *The Boy's Own Paper* 14(672):138–139.
- Stradling, A. 1891e. A nice present. *The Boy's Own Paper* 14(673):154–155.
- Stradling, A. 1891f. Ambrose. *The Boy's Own Paper* 14(675):187–188.
- Stradling, A. 1892a. A snake idyll. *The Boy's Own Paper* 14(678):237–238.
- Stradling, A. 1892b. The common snake. Part I. *The Boy's Own Paper* 14(681):286.
- Stradling, A. 1892c. The common snake. Part II. *The Boy's Own Paper* 14(682):299–300.
- Stradling, A. 1892d. My escapes. Part II. *The Boy's Own Paper* 14(685):346–347.

- Stradling, A. 1892e. My escapes. Part III. *The Boy's Own Paper* 14(686):363.
- Stradling, A. 1892f. More escapes. Part III. *The Boy's Own Paper* 14(689):414–415.
- Stradling, A. 1892g. More escapes. Part IV. *The Boy's Own Paper* 14(690):426–427.
- Stradling, A. 1892h. More escapes. Part V. *The Boy's Own Paper* 14(691):442–443.
- Stradling, A. 1892i. The common viper. *The Boy's Own Paper* 14(704):651–652.
- Stradling, A. 1892j. A blue snake – and how to bag him. *The Boy's Own Paper* 14(713):794–795.
- Stradling, A. 1892k. A blue snake – and how to bag him. Part II. *The Boy's Own Paper* 14(715):811–813.
- Stradling, A. 1892l. A snaky puzzle. Part II. *The Boy's Own Paper* 15(717):31–32.
- Stradling, A. 1892m. On man-eating reptiles. *Chambers' Journal* 9(447):475–479.
- Stradling, A. 1892n. The virus of vipers. *Manchester Times*, 20 May 1892:6.
- Stradling, A. 1892o. Sea sickness. *British Medical Journal* 2(1646):155.
- Stradling, A. 1893a. Jottings from the zoo. *The Boy's Own Paper* 15(759):693–694.
- Stradling, A. 1893b. The parrot snake. *The Boy's Own Paper* 15(764):776–778.
- Stradling, A. 1893c. The fatal case of snake bite in South Wales. *British Medical Journal* 2(1700):280.
- Stradling, A. 1893d. Some superstitions about snakes. *Chambers' Journal* 10(491):325–328.
- Stradling, A. 1893e. On a physiological classification of the ophidia – with special reference to the constrictive habit. *Science* 21(534):228–229.
- Stradling, A. 1893f. Gophers and moles. *Science* 21(540):319.
- Stradling, A. 1894a. Three snaky coincidences. *The Boy's Own Paper* 16(781):202.
- Stradling, A. 1894b. Skinned alive. *The Boy's Own Paper* 16(791):364.
- Stradling, A. 1894c. Oddities about eggs. *The Boy's Own Paper* 16(794):397–398.
- Stradling, A. 1894d. How I keep snakes. Part I. *The Boy's Own Paper* 16(809):652–654.
- Stradling, A. 1894e. A truthful story of a ghost. *The Boy's Own Paper* 16(810):665–666.
- Stradling, A. 1894f. How I keep snakes. Part II. *The Boy's Own Paper* 16(810):667.
- Stradling, A. 1894g. Some exceptional snakes. Part I. *The Boy's Own Paper* 16(812):698–700.
- Stradling, A. 1894h. Some exceptional snakes. Part II. *The Boy's Own Paper* 16(813):718.
- Stradling, A. 1894i. A bad five minutes with a python. Part I. *The Boy's Own Paper* 17(821):12.
- Stradling, A. 1894j. A bad five minutes with a python. Part II. *The Boy's Own Paper* 17(822):30–31.
- Stradling, A. 1894k. A bad five minutes with a python. Part III. *The Boy's Own Paper* 17(823):46–47.
- Stradling, A. 1894l. Viperiana. *Chambers' Journal* 11(544):348–351.
- Stradling, A. 1894m. Identifying criminals. *The Standard*, 27 March 1894:3.
- Stradling, A. 1895a. Australian snakes. *The Boy's Own Paper* 17(852):511.
- Stradling, A. 1895b. Serpent-feeding. *Knowledge* 18:1–3.
- Stradling, A. 1895c. The “hoop snake”. *Knowledge* 18:85.
- Stradling, A. 1895d. Snake-taming. *Chambers' Journal* 12(587):203–206.
- Stradling, A. 1895e. The serpent and the stage. *Chambers' Journal* 12(589):237–240.
- Stradling, A. 1895f. An extinct snake. *The Boy's Own Paper* 17(Summer Number):62–64.
- Stradling, A. 1895g. What's the use! Part II. *The Boy's Own Paper* 17(843):362–363.
- Stradling, A. 1895h. Snakes in captivity: A talk with Dr. Arthur Stradling. *The Sketch* 9(110):303–304.
- Stradling, A. 1896a. The tribe accurst. *The Picture Magazine* 7:176–177.
- Stradling, A. 1896b. Fallen among pirates: Remarkable adventures of an Englishman in China. *The Wanganui Herald*, 11 May 1896:3.
- Stradling, A. 1896c. Fallen among pirates: A remarkable adventure. *Huddersfield Chronicle*, 25 February, 1896:4.
- Stradling, A. 1896d. Mail. *Mustard and Cress Hull Daily Mail*, 29 May 1896:1.
- Thomas, R.G., and F.H. Pough. 1979. The effect of rattlesnake venom on digestion of prey. *Toxicon* 17(3): 221–228.
- Valenciennes, M. 1841. Observations faites pendant l'incubation d'une femelle du Python a deux raies (*Python bivittatus*, Kuhl) pendant les mois de mai et de juin 1841. *Annales des Sciences Naturelles* 16:65–72.
- Welsh Jr, H.H., and A.J. Lind. 2000. Evidence of lingual-luring by an aquatic snake. *Journal of Herpetology* 34(1):67–74.

We suggest the following format for citing this article:

Mendyk, R. W. 2022. A Peculiar Case of Ophiomania: The Herpetological Pursuits, Contributions and Advocacy of Arthur Stradling (1851–1902). *Bibliotheca Herpetologica* 16(2):14–32.

APPENDIX: ANNOTATED BIBLIOGRAPHY OF HERPETOLOGICAL WORKS

SCHOLARLY PUBLICATIONS

- Stradling, A. 1882. The desquamation and digestion of serpents, from a new point of view. *The Zoologist* 6(62):50–55. [presents a detailed overview of ecdysis in snakes as well as insight into the digestive abilities of snakes, including observations and experiments that he conducted on both subjects]
- _____. 1882. Snake poison as a pepsine. *The Zoologist* 6(63):118. [discusses the ability of snake venom to dissolve proteins and its effect on biological tissues, and argues against its direct comparison to gastric digestive juices]
- _____. 1882. Snakes venomous and non-venomous. *The Zoologist* 6(64):140–145. [discusses the difficulties of identifying and distinguishing between venomous and non-venomous snakes using morphology, coloration and behavior]
- _____. 1882. The incubation of serpents. *The Zoologist* 6(69):345–351. [describes experiments he conducted on a clutch of maternally-incubated *Natrix helvetica* eggs to quantify the temperature changes brought about by the mother, and offers a broader discussion of egg incubation and viviparity in snakes]
- _____. 1882. On the treatment of snakes in captivity. *The Zoologist* 6(72):448–456. [the first installment in a series of articles on the captive husbandry of snakes, focusing on the study of snakes and increasing interest among enthusiasts to keep them, sources for information on their natural history and care, the challenge and importance of studying their habits in captivity, and his own motivation for keeping and studying snakes; also outlines the general goals of the series]
- _____. 1882. Notes about snakes. *Nature* 25(642):377–378. [discusses defensive behaviors of snakes and describes a purported whistling sound produced by an *Oxyrrhopus dolii* that he captured in Brazil]
- _____. 1882. Hydrophobia and snakebite. *Nature* 26(662):221–222. [compares and contrasts the effects and onset of symptoms of venomous snakebites and rabies, and seeks to break the association between the two that was prevalent at the time]
- _____. 1883. On the treatment of snakes in captivity. *The Zoologist* 7(73):18–24. [discusses basic principles of snake husbandry including the importance of appropriate thermal conditions and allowing snakes to gradually habituate to captivity; also offers insight on the size and construction of enclosures]
- _____. 1883. On the treatment of snakes in captivity. *The Zoologist* 7(74):61–68. [discusses ways of providing pools of water and heating enclosures by means of cisterns to hold boiling water and heavily insulating enclosures to minimize heat loss]
- _____. 1883. On the treatment of snakes in captivity. *The Zoologist* 7(75):103–114. [discusses methods of insulating enclosures, furnishings including live plants, constructing vivaria to prevent escapes, specialized housing for hatchlings and neonates, and outdoor enclosures for native European taxa]
- _____. 1883. On the treatment of snakes in captivity. *The Zoologist* 7(77):205–213. [provides a detailed discussion of appropriate species (mostly exotics) for maintaining in captivity that were commercially available to hobbyists at the time]
- _____. 1883. On the treatment of snakes in captivity. *The Zoologist* 7(78):242–251. [discusses appropriate species for maintaining under temperate conditions in Europe and offers details on the reptile trade, how and where to acquire specimens from, and what to look for in terms of health and physical condition]
- _____. 1883. On the treatment of snakes in captivity. *The Zoologist* 7(79):284–291. [discusses other important aspects of husbandry including ventilation and drainage, maintenance and cleaning, and the provision of water]
- _____. 1893. On a physiological classification of the ophidia – with special reference to the constrictive habit. *Science* 21(534):228–229. [discusses the functional morphology of snakes as it pertains to prey sequestration strategies and the taxonomic groups that fall under each category, focusing particularly on venomous taxa and constrictors]

POPULAR ARTICLES

- _____. 1881. Some queer dishes. Part II. *Chambers' Journal* 18(934):748–750. [describes various reptiles that are eaten by humans and the species that Stradling himself had consumed in his travels]
- _____. 1882. Snake-anecdotes. In two parts. Part I. *Chambers' Journal* 19(966):414–417. [mentions a large 23-foot long anaconda that was able to push its coils against a tree to break the glass window of its exhibit at the ZSL; during catch-up it severely bit and lacerated the shoulder of the zoo's carpenter; also describes the death of a bushmaster he was transporting to London, and mentions birth and escape of a litter of rattlesnakes on board his ship]
- _____. 1882. Snake-anecdotes. In two parts. Part II. *Chambers' Journal* 19(969):462–464. [describes an incident where a customs inspector was bitten by one of his snakes, which turned out to be a non-venomous species; also discusses some of the snakes and techniques he would use in his public lectures and demonstrations, and an incident where he was almost killed by a *Python natalensis* at the Antwerp Zoo]
- _____. 1882. The heloderma, a venomous lizard. *Chambers' Journal* 19(979):626–627. [provides an overview of *Heloderma horridum*, including its physical description, habits and venom as well as questions and thoughts about its natural history]
- _____. 1882. A slight scare. *Chambers' Journal* 19(987):755–757. [briefly mentions some of Frank Buckland's (ZSL) experiences with snakes]
- _____. 1882. Snakes, and how to tame them. *The Boy's Own Paper* 5(195):10–11. [discusses sourcing *Natrix helvetica* and how to construct a terrarium for the species]
- _____. 1882. Snakes, and how to tame them. Part II. *The Boy's Own Paper* 5(196):25–26. [discusses how to collect *Natrix helvetica*, care for them in captivity, and handle them]
- _____. 1882. Out of the way pets. Part I. *The Boy's Own Paper* 5(197):45–46. [describes some of his experiences keeping *Anguis fragilis*, frogs and salamanders, and discusses where hobbyists can purchase individuals to keep at home]

- _____. 1882. Out of the way pets. Part II. *The Boy's Own Paper* 5(199):61–62. [describes some of his experiences keeping lizards including chameleons, and tortoises, and offers some advice for their care and where to acquire them]
- _____. 1882. Snakes' eggs. *The Boy's Own Paper* 5(200):86. [offers a description of snake eggs and how to preserve them as natural history specimens]
- _____. 1882. Snakes' eggs. Part II. *The Boy's Own Paper* 5(202):107. [discusses the incubation of reptile eggs including maternal incubation in snakes, and describes some of his own experiences with artificial egg incubation and observations of maternal incubation in a *Natrix helvetica* in his collection]
- _____. 1883g. What to do with a dead snake Part I. *The Boy's Own Paper* 5(214):334–335. [describes methods for preserving deceased snakes in spirits and for taxidermy; quite surprisingly, he condones and recommends the killing of wild vipers, noting it as one's "duty"]
- _____. 1883. What to do with a dead snake. Part II. *The Boy's Own Paper* 5(215):351. [continued from the previous account, it provides instructions on how to skin snakes and treat their skins for taxidermy purposes]
- _____. 1883. What to do with a dead snake. Part III. *The Boy's Own Paper* 5(216):363. [continued from the previous account, it describes methods for preparing snake skeletons, using ants, tadpoles and fish to clean skeletons]
- _____. 1883. Toad tattle. *Golden Hours* 16:101–105. [discusses the various toad species found in the UK including their habits and natural history, as well as exotic toad species and their habits, the toxicity and function of their poison, and dietary habits]
- _____. 1883. Maternal instinct. *Hardwicke's Science Gossip* 19:65. [briefly mentions some captive snake births at the ZSL including *Bitis nasicornis*, *Daboia russelii*, *Chilabothrus subflavus* and others, and discusses maternal incubation by *Natrix helvetica* and the use of a hen to incubate caiman eggs in Nicaragua]
- _____. 1887. Reptiles recently observed near Watford. *Transactions of the Hertfordshire Natural History Society and Field Club* 4:119. [describes sightings and observations of *Anguis fragilis* and *Natrix helvetica* in the field]
- _____. 1889. Alligators and crocodiles. Part I. *The Boy's Own Paper* 12(560):4–5. [discusses the diversity of crocodylians, some basic info on their care in captivity, and cases of fatal attacks on humans]
- _____. 1889. Alligators and crocodiles. Part II. *The Boy's Own Paper* 12(561):28–30. [provides information on the construction of enclosures for housing captive crocodilians and some elements of their care]
- _____. 1889. Alligators and crocodiles. Part III. *The Boy's Own Paper* 12(562):42–43. [provides information on crocodilian natural history and egg incubation, including the hatching of caiman eggs by a hen]
- _____. 1889. Alligators and crocodiles. Part IV. *The Boy's Own Paper* 12(563):58–59. [discusses crocodilians maintained at the ZSL and several anecdotes of crocodilians in captivity]
- _____. 1889. A true snake story. *Chambers' Journal* 6(282):334–336. [describes an incident in British Guiana where a father came home to find a snake on his sleeping infant; in an attempt to dispatch the snake he threw the infant and snake to the ground, fracturing the infant's collar bone in the process; Stradling later examined the dispatched snake and found it to be a harmless *Pseudoboa coronata*]
- _____. 1889. The adventures of a snake. *The Boy's Own Paper* 12(568):136–138. [describes the escape of a Persian snake (possibly *Platycephalus rhodorachis*) at the ZSL which was found alive six years later living in the grain storage room of the zoo; when it was returned to an enclosure with other snake species, it was promptly cannibalized by a cagemate. The account also briefly mentions a *Boa constrictor* that had traveled with Stradling "half a million miles by land and water", "been up in a balloon", "passed within the Arctic Circle", and "lain in the hands or around the necks of thirteen royal personages", as well as some thefts of tortoises from the ZSL]
- _____. 1890. Mistakes about snakes. Part I. *The Boy's Own Paper* 13(615):58–59. [briefly discusses some personal motivations for studying snakes, corrects several common misconceptions about them, and refers to his observations of lingual luring in some species]
- _____. 1890. Mistakes about snakes. Part II. *The Boy's Own Paper* 13(616):69. [corrects several misconceptions about snakes and discusses the functional morphology of the tongue including its potential role in olfaction; also discusses the shedding process]
- _____. 1890. Mistakes about snakes. Part III. *The Boy's Own Paper* 13(617):90. [discusses and corrects various misconceptions and superstitions about snakes]
- _____. 1890. Mistakes about snakes. Part IV. *The Boy's Own Paper* 13(618):106–108. [discusses and corrects various misconceptions and superstitions about snakes, including their behavior and habits when handling venomous taxa, and the natural diets of snakes]
- _____. 1890. Glass-snakes. *The Boy's Own Paper* 13(621):157–158. [provides a physical description of *Anguis fragilis*, with notes on its natural history, habits, care in captivity, and intelligence]
- _____. 1890. My first adventure. *The Boy's Own Paper* 13(624):200–203. [shares some childhood memories related to his lifelong affinity for snakes]
- _____. 1890. A barking frog. *The Boy's Own Paper* 13(Christmas Number):52–53. [describes his experiences with a *Ceratophrys ornata* specimen he brought back from South America that did not feed for 15–18 months and gives a physical description of the species, mentions its behavior and habits, aestivation, vocalization, keeping at ZSL and folklore and superstitions about the species; also discussed were his unsuccessful efforts to demonstrate to locals that its bite was not dangerous/venomous (they thought it was a magic trick), and his recognition that chameleons died in captivity in the absence of natural sunlight]
- _____. 1891. Some queer uses of animals. Part I. *The Boy's Own Paper* 13(625):222–223. [briefly discusses the value of toads as biological control agents for insects and other pests]
- _____. 1891. Some queer uses of animals. Part II. *The Boy's Own Paper* 13(626):235–236. [briefly mentions the extirpation of *Vipera berus* from a small island off the west coast of Scotland by six pairs of peafowl]
- _____. 1891. Some queer uses of animals. Part III. *The Boy's Own Paper* 13(627):254. [mentions the usage of rattlesnake rattles and pitviper fangs as jewelry and fashion accessories]
- _____. 1891. Some queer uses of animals. Part V. *The Boy's Own Paper* 13(629):283–284. [briefly discusses the use of snakes and crocodilians for leather, and the extermination of rattlesnakes from den sites]
- _____. 1891. Sea-serpents. Part I. *The Boy's Own Paper* 13(632):335. [provides physical descriptions of sea snakes]
- _____. 1891. Sea-serpents. Part II. *The Boy's Own Paper* 13(633):346–

347. [discusses the dentition and venom of sea snakes, including cases of fatal bites and close-calls]
- _____. 1891. Sea-serpents. Part III. *The Boy's Own Paper* 13(634):362–363. [discusses the predatory habits of sea snakes, predation on sea snakes by sharks, and the impacts of snake venoms on other animals; also discussed are some superstitions and folklore pertaining to snakes and bodies of water]
- _____. 1891. Natural history of the British Navy. *The Boy's Own Paper* 13(642):487. [briefly discusses the usage of reptile and amphibian names in the naming of naval ships and brigades]
- _____. 1891. The “horned toad”. *The Boy's Own Paper* 14(672):138–139. [describes the natural history and habits of *Phrynosoma cornutum*, and attempts to clear up misconceptions about them]
- _____. 1891. A nice present. *The Boy's Own Paper* 14(673):154–155. [describes a shipment of *Vipera berus* neonates that he received from a correspondent and the collection of venom from these individuals for use in his experiments, and discusses various methods of collecting venom from snakes; also described was the escape of these individuals in his private residence]
- _____. 1891. Ambrose. *The Boy's Own Paper* 14(675):187–188. [discusses a *Rhinella marina* in his private collection and its husbandry, and describes aspects of the species' natural history, poison, and introduction to Jamaica from Savanilla]
- _____. 1892. Cricket curios. *The Boy's Own Paper* 14(677):218–219. [briefly discusses snakes occurring in Regent's Park and other city parks in and around London, including some negative encounters with humans]
- _____. 1892. A snake idyll. *The Boy's Own Paper* 14(678):237–238. [discusses preparing skeletal mounts of snakes]
- _____. 1892. The common snake. Part I. *The Boy's Own Paper* 14(681):286. [discusses some behavioral aspects of *Natrix helvetica*, and notes that the species makes a poor captive because of its foul odor and shy habits; also describes a case of parasitism - probably snake mites (*Ophionyssus*), and mentions the availability of some exotic snakes from traders]
- _____. 1892. The common snake. Part II. *The Boy's Own Paper* 14(682):299–300. [discusses some husbandry practices, including feeding reluctant snakes as well as husbandry challenges with *Natrix helvetica* such as feeding and cannibalism, and his release of specimens into the wild in South America and the Philippines as part of an experiment to test whether they could survive in tropical climates]
- _____. 1892. My escapes. Part II. *The Boy's Own Paper* 14(685):346–347. [Mentions several snake escapes from Stradling's personal collection and the original reptile house of the ZSL, including two *Daboia russelii* that were later found in the zoo's grain storage barn and a litter of neonate *Chilabothrus subflavus* that escaped through the wire mesh of their mother's exhibit]
- _____. 1892. My escapes. Part III. *The Boy's Own Paper* 14(686):363. [mentions claims of a large escaped *Boa constrictor* or python that allegedly lived in the sewers of Vienna, a group of 21 crocodiles that allegedly escaped from a shipping vessel into the Elbe River in 1888, as well as various other escaped reptiles]
- _____. 1892. More escapes. Part I. *The Boy's Own Paper* 14(687):380–381. [calls attention to, and denounces several “tall tales” involving snakes and sensationalized stories in the media]
- _____. 1892. More escapes. Part III. *The Boy's Own Paper* 14(689):414–415. [describes some escapes and near-escapes at the ZSL including a large anaconda, and some comments on venomous species in the collection]
- _____. 1892. More escapes. Part IV. *The Boy's Own Paper* 14(690):426–427. [mentions the escape of an anaconda aboard a ship that was later found with its tail eaten by rats; also mentions several cases of snakes hitchhiking and turning up on cargo ships]
- _____. 1892. More escapes. Part V. *The Boy's Own Paper* 14(691):442–443. [describes additional instances of escaped snakes from his and others' collections]
- _____. 1892. The common viper. *The Boy's Own Paper* 14(704):651–652. [mentions keeping many different vipers and pitvipers in his private collection and describes the natural habits, history and husbandry of *Vipera berus* in captivity]
- _____. 1892. A blue snake – and how to bag him. *The Boy's Own Paper* 14(713):794–795. [discusses incidences of blue reptiles and amphibians and observations on the fading of green-colored reptiles and amphibians to blue upon death; also discussed is a blue racer (possibly *Coluber constrictor foxii*) in his private collection]
- _____. 1892. A blue snake – and how to bag him. Part II. *The Boy's Own Paper* 14(715):811–813. [discusses feeding strategies for captive snakes, handling snakes, and how to safely secure them in sacks]
- _____. 1892. A snaky puzzle. Part I. *The Boy's Own Paper* 15(716):15. [mentions acquiring an *Chilabothrus angulifer* from Cuba that was in poor condition, and nursing it back to health]
- _____. 1892. A snaky puzzle. Part II. *The Boy's Own Paper* 15(717):31–32. [continued from the previous account, Stradling mentions keeping a *Chilabothrus angulifer* inside a cloth bag in his bed with him as he slept in an effort to keep it warm; he awoke to find that the snake had swallowed the rat it had been offered overnight along with much of the bag it was housed in; also discussed are strategies for feeding snakes in captivity]
- _____. 1892. On man-eating reptiles. *Chambers' Journal* 9(447):475–479. [discusses the potential for man-eating crocodylians and snakes, species potentially capable of preying on humans, and reviews documented and anecdotal cases of predation on humans]
- _____. 1893. Jottings from the zoo. *The Boy's Own Paper* 15(759):693–694. [very briefly mentions some reptiles recently added to the collection of the ZSL]
- _____. 1893. The parrot snake. *The Boy's Own Paper* 15(764):776–778. [discusses the natural history and habits of *Leptophis ahaetulla*, and comments on the problems that common names create for the identification of snake species]
- _____. 1893. Snake stories. *The Boy's Own Paper* 15(Summer Number):56–57. [discusses fabricated and exaggerated stories about snakes and then tells a story in which he formerly believed that he had been bitten by a viper as a child, but later realized it was probably a bee sting or stick from a prickly plant]
- _____. 1893. Some superstitions about snakes. *Chambers' Journal* 10(491):325–328. [discusses various examples of superstitions, folklore and misconceptions about snakes]
- _____. 1894. Three snaky coincidences. *The Boy's Own Paper* 16(781):202. [discusses some snake-related anecdotes from his personal travels]
- _____. 1894. Skinned alive. *The Boy's Own Paper* 16(791):364. [discusses ecdysis in snakes]
- _____. 1894. Oddities about eggs. *The Boy's Own Paper* 16(794):397–398. [discusses some biological properties of reptile eggs and their incubation]
- _____. 1894. How I keep snakes. Part I. *The Boy's Own Paper* 16(809):652–654. [describes his own experiences acquiring, collecting, and shipping snakes for maintenance in captivity]

- _____. 1894. How I keep snakes. Part II. *The Boy's Own Paper* 16(810):667. [describes how he houses captive snakes and the types of enclosures utilized, as well as some basic husbandry practices]
- _____. 1894. Some exceptional snakes. Part I. *The Boy's Own Paper* 16(812):698–700. [discusses hooding in cobras, behavioral aspects of *Xenodon* and *Heterodon*, the sound-producing abilities of rattlesnakes and *Echis*, and the habits of *Bothrops*]
- _____. 1894. Some exceptional snakes. Part II. *The Boy's Own Paper* 16(813):718. [mentions providing the ZSL with a *Lachesis*, and discusses the habits of *Ophiophagus hannah* and various other snakes]
- _____. 1894. A bad five minutes with a python. Part I. *The Boy's Own Paper* 17(821):12. [discusses many of the bites and injuries he has sustained over his lifetime and briefly mentions an incident involving him and a *Python natalensis* at the Antwerp Zoo]
- _____. 1894. A bad five minutes with a python. Part II. *The Boy's Own Paper* 17(822):30–31. [mentions transporting a large anaconda back to England, using empty cabins in the ship as caging for the specimen]
- _____. 1894. A bad five minutes with a python. Part III. *The Boy's Own Paper* 17(823):46–47. [continuing from the previous account, he first describes a serious bite he received from a large anaconda before detailing an incident where a *Python natalensis* constricted and nearly killed him as he was trying to treat it for mouth canker, resulting in a loss of consciousness and broken ribs]
- _____. 1894. An old acquaintance. *The Boy's Own Paper* 17(833):203–204. [discusses how a snake that he had initially kept and then gifted to the Antwerp Zoological Park, ended up on display at the ZSL's reptile house]
- _____. 1894. Viperiana. *Chambers' Journal* 11(544):348–351. [discusses the likelihood of fatality from the bite of *Vipera berus* in the UK, and the natural history, habits and venom of this species]
- _____. 1895. Serpent-feeding. *Knowledge* 18:1–3. [includes some longevity records for reptiles and amphibians at the ZSL and in his private collection, discusses some common health issues in captive snakes, and the low survivorship of wild-caught snakes, citing their reluctance to feed as a major cause of these issues; also discusses feeding peculiarities among various snakes in captivity, and recommendations for feeding inappetent snakes, including a forced-feeding technique he developed himself referred to as “cramming”]
- _____. 1895. Snake-taming. *Chambers' Journal* 12(587):203–206. [describes taming snakes as a tool for reluctant feeders to settle down into captivity; also describes variations in temperament and tameability between different snake families and individual animals, discusses the behavior and habits of cobras and *Ophiophagus hannah*, and offers guidelines and instructions for taming snakes such as using a soft brush, feather brush or feather broom to safely discourage them from striking]
- _____. 1895. The serpent and the stage. *Chambers' Journal* 12(589):237–240. [describes the use of snakes in various theatrical performances and by street performers; methods of taming snakes, as well as discusses snake charmers; techniques used to render venomous species harmless; his own practice of loaning specimens from his collection to stage shows in England and the accidental escape of a “wasp snake” (= *Spilotes pullatus*) on Barbados]
- _____. 1895. An extinct snake. *The Boy's Own Paper* 17(Summer Number):62–64. [discusses the conservation status and threats of *Chilabothrus subflavus* on Jamaica, noting its decline and impending extinction due to mongooses introduced to the island; also briefly mentions efforts to preserve the species on an offshore island, and the history of the species at the ZSL]
- _____. 1895. What's the use! Part I. *The Boy's Own Paper* 17(841):327–328. [discusses the functional morphology of snakes]
- _____. 1895. What's the use! Part II. *The Boy's Own Paper* 17(843):362–363. [continues the discussion of functional morphology in snakes, focusing on limblessness, the tongue (including lingual luring), body coloration and venom apparatus]
- _____. 1895. Snakes in captivity: A talk with Dr. Arthur Stradling. *The Sketch* 9(110):303–304. [interview in which he discusses his lifelong dedication to studying snakes and various husbandry aspects including forced-feeding]
- _____. 1896. The tribe accurst. *The Picture Magazine* 7:176–177. [Provides information on the natural history and habits of snakes, and offers tips on feeding them in captivity]

CORRESPONDENCE

- Stradling, A. 1880. Experiments on snake-bite. *The Lancet* 1880(2):706. [responds to an earlier letter that mischaracterized his own self-inoculation experiments with snake venoms and drew criticism from the medical community; he also requests that collaborators join him in his efforts]
- _____. 1883. The extermination of venomous serpents. *Scientific American* 48(15):225. [briefly discusses the issue of snakebite in India, and raises doubts about methods described in a recent article on trapping and poisoning venomous snakes]
- _____. 1892. The virus of vipers. *Manchester Times*, 20 May 1892:6. [discusses snake venom and its ability to denature proteins]
- _____. 1893. The fatal case of snake bite in South Wales. *British Medical Journal* 2(1700):280. [calls into question an earlier report describing an alleged bite from a common viper]
- _____. 1893. Gophers and moles. *Science* 21(540):319. [describes cases of toxicity in several snake and lizard species in his collection that were fed a particular species of earthworm, which resulted in violent convulsions and death in some specimens]
- _____. 1894. The “tragedy” at the zoo. *The Standard*, 25 October 1894:3. [corrects misinformation about snakes]
- _____. 1894. Very big snakes. *The Standard*, 22 December 1894:2. [corrects misinformation about snakes including claims of giant snakes; he claims to have carefully measured a dead anaconda and found it to be 31 feet to the point where sound skin terminated at the head/neck (its head had been smashed)]
- _____. 1894. Blue frogs and viper bites. *British Medical Journal* 1894(1):1287. [discusses blue specimens of *Hyla arborea*, and the tendency of reptiles and amphibians to lose their green coloration in captivity and after death, noting errors in works of natural history founded on museum specimens; doubts are also raised about the validity of a recently publicized venomous snakebite]
- _____. 1895. Australian snakes. *The Boy's Own Paper* 17(852):511. [clarifies some errors in the taxonomic identification of some Australian snakes]
- _____. 1895. The “hoop snake”. *Knowledge* 18:85. [responds to a previous letter about “hoop snakes” and rejects the existence of such a mythical creature based on the functional morphology, behavior and abilities of snakes]

Book Review

On the Backs of Tortoises: Darwin, the Galápagos, and the Fate of an Evolutionary Eden

Elizabeth Hennessy, 2019. Yale University Press, xix,
310 p. \$30 (hardcover ISBN: 9780300232745)

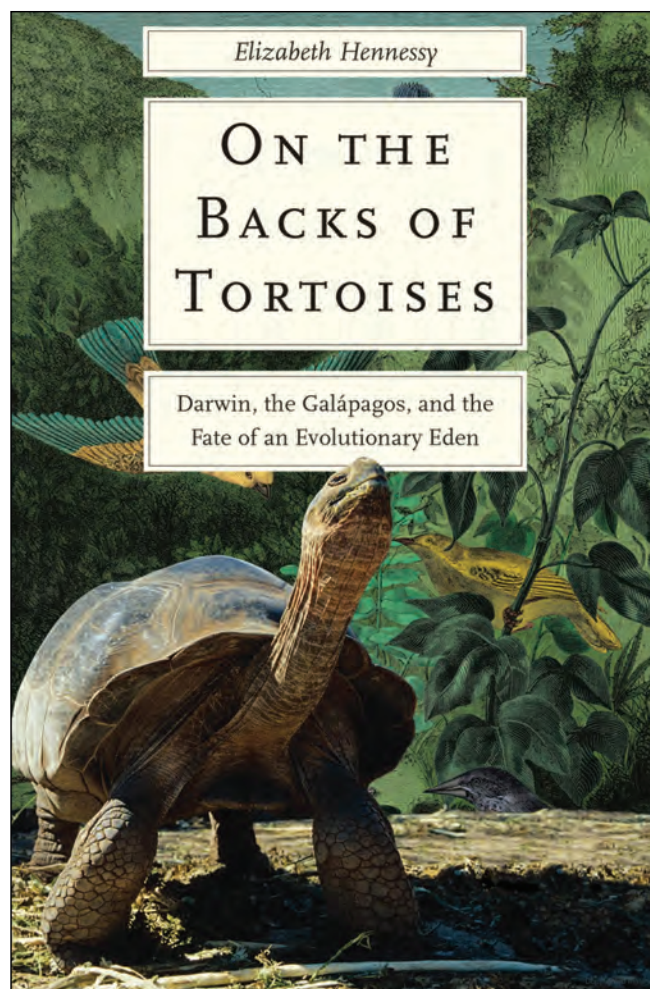
Ross J. Maynard

The Biodiversity Group, Tucson, AZ 85743, USA. ross@biodiversitygroup.org

“Struggles over conservation are not between those who destroy and those who conserve nature..., but among populations who understand the value of nature very differently.” (p. 211)

Elizabeth Hennessy’s book, *On the Backs of Tortoises: Darwin, the Galápagos, and the Fate of an Evolutionary Eden*, is an engaging and well-researched book that recounts the complex human history on the Galápagos archipelago through the backdrop of giant tortoise exploitation over the past five centuries. To be sure, this treatment of the archipelago stands in contrast to many popular accounts. In preparing the reader for her tour of the Galápagos, Hennessy makes it clear in the Preface that she does not intend to showcase the last stronghold of pristine nature—because the Galápagos are neither pristine, the last remote wilderness, or uninhabited by humans. She also does not attempt to argue in support of ideals that center on imaginative conservation goals such as restoring the ecological state of the islands to reflect conditions exactly as they existed prior to human contact, or lament how the growing human presence is at odds with conservation objectives on the Galápagos. In fact, later in the book she discloses part of her thought process during the early stages of the project: instead of “undertaking a study that would reinscribe an already well-tread narrative that positioned residents as threats to iconic species by focusing on a very small minority of the population,” she wanted to “understand the history of conservationist policing of human relationships with the tortoises” (p. 200). Indeed, Hennessy’s treatment of the Galápagos aims to challenge simplified, mainstream narratives about its conservation identity, which have tended to ignore, exacerbate, or even catalyze socio-ecological issues on the islands, and to examine areas where conservation practices can be approached differently.

Despite the book’s average size, there is a wide breadth of material presented. In eight chapters, 265 pages of text and footnotes, and told through a series of historical and anecdotal accounts, a smorgasbord of details are covered spanning fields such as ethnology, politics, economics, natural history, island biogeography, geology, and environmental philosophy. These details are not covered comprehensively as they



relate to the archipelago, but are addressed in a way that explores the connectivity between them. In doing so, Hennessy also considers how human imagination and themes of imperialism, inequity, and racial capitalism have profoundly influenced the way these fields are approached and implemented.

Although I didn't initially expect the focus of this book to be so encompassing in scope—at times the stories seem a little too scattered—I was less surprised to realize that the challenges being faced on the Galápagos are hardly as unique to the islands as the giant tortoises themselves.

In the opening chapter, Hennessy outlines the general framework explored throughout the book. Giant tortoises are identified as being fundamental to shaping the history of the archipelago, and tracking the evolving human relationship with giant tortoises underscores historical shifts in western values. As Hennessy points out, ever since the first human contact with the Galápagos in the early 16th century, giant tortoises “have been everything from soup and steaks to natural history specimens, resources for economic development, endangered objects of conservation, celebrated breeding studs and unnamed ‘harems’ of dams, subjects of tourists’ photo-shoots, and symbols of protest” (p. 15). Moreover, she alludes to how both the practices and theoretical basis of conservation do not always align with the reality of the natural world or represent the diversity of values among human populations. This sets the stage for recounting a raw version of the environmental history of the Galápagos in the chapters that follow, as she weaves these details into how she has come to view a conservation landscape that is riddled with contradictions.

Due to the sheer number of potential discussion points that she touches on, listing a few of the more recurring questions should suffice. Among them are: Is the “Edenic” approach to conservation of restoring the pre-human ecological state of the islands not fundamentally flawed due to hundreds of years of profound human influence, especially given that evolutionary trajectories are non-reversible? If humans are animals, why are natural history and cultural history viewed as discrete realms? How can conservation initiatives be sustainable when they represent the values of only certain groups of people, and exclusive of others? Considering the highlights of history dominate our rhetoric of the past, has that allowed us to overlook how the darker elements of cultural history remain embedded within the societal structures of today? And, is it not hypocritical to view the growth of local communities as a threat to conservation objectives when the primary driver of human population growth on the archipelago is the tourism industry, which helps fund the conservation work?

To provide context, let's expand on the latter example and consider the following selection of circumstances and challenges that are described in the book. Numerous points of friction have developed on the Galápagos as a result of an economy and political system structured on exploiting conservation initiatives that have often brought differences among groups of people on the islands into focus instead of seeking to harness shared values and establish compromise. The privileges of tourists, biologists, and wealthier Ecuadorians in the last six decades stand in contrast to the experiences of many island residents, or Galapagueños, who often have less social and geographic access to the archi-

pelago than the former groups. Making matters worse, both tourists and conservationists often view the growing presence of local communities as a main pressure on native wildlife, despite the fact that these same communities not only help support the needs of the former groups, but have grown in response to them. The numbers don't lie; in 1960, the archipelago was home to approximately 2,000 inhabitants, which corresponds to the same timeframe the archipelago was designated a national park. Six decades later, and largely thanks to the demands of a conservation-centric tourist industry, the population is now upwards of 30,000 people. The tendency to target only proximate instead of ultimate drivers of declines in wildlife populations and ecosystem health (e.g. banning wildlife harvesting by locals instead of addressing inequity) has resulted in further marginalizing underserved local communities, and even positioned them as being less important than the charismatic giant tortoises.

In Chapter 7, Hennessy points to a poignant example of this divide. In response to a wildfire that took hold on the island of Isabela in the mid '90s, emergency personnel acted quickly to airlift tortoises to safety, one even being flown to Florida for top-notch medical care. Meanwhile, local residents struggled to gain access to basic healthcare, with a young girl losing her life as a result (p. 207). While issues such as healthcare have improved since then—I have even experienced the benefits of Ecuador's social healthcare in recent years—I think Hennessy rightfully suggests that circumstances such as these are indicative of deeply rooted points of friction in the socio-ecological structure. And this brings us back to the question that certainly deserves consideration: how can the growth and needs of local communities be a threat to conservation when the primary driver of their presence and growth is the tourism industry, which in turn sponsors the conservation work?

To explore why such conflicts arose, and how they are maintained, Hennessy's musings on the Galápagos' history attempts to touch on each notable period of human influence. Many of these accounts make it abundantly clear that despite the archipelago's geographic isolation, it provided little separation from human misdeeds. Similar to other efforts examining present-day issues that have roots entangled in a messy past, the influences of imperialism and racism are neither overlooked nor reduced to footnotes, but presented as prominent factors that beg honest attention. From my experiences working as a conservation biologist on the Ecuadorian mainland for well over a decade, I can certainly appreciate the need to zoom out in order to recognize how the many past and present forces at play have contributed to the dynamics that we are navigating. Hennessy's narrative serves as a case study that reinforces how entangled and challenging the conservation landscape is due to a convoluted past and an economic structure that is both unsustainable and inequitable.

The difficulty of meaningfully addressing such divisive influences is undoubtedly due to a wide range of factors, the cultural tendency of understating or excluding those influ-

ences from social dialog among them. Polishing shiny finishes on widely consumed information to reflect comfortable messages often moderates mainstream perspectives on historical events as well. Or as Hennessy writes, "... the way we celebrate history sometimes bears little resemblance with the past" (p. 42). In Chapter 2, for example, she discusses how the Darwin that visited the Galápagos in the 19th century is quite distinguishable from the celebrated Darwin on the Galápagos today. This can even be seen in the erected monuments that channel tourists' conversations, as the statues on the archipelago of a seemingly conservation-minded Darwin fall short of depicting him enjoying a bowl of baby tortoise soup. Fortunately, her contrasting the two versions of Darwin is not meant to demonize who he was, but to serve as a reminder that even he preferred a bowl of Tortuga Estofada during a time when it was not unusual to consume and there were otherwise limited options—perhaps not entirely different to the approach of local communities today. Also discussed are long-standing tropes of the Galápagos as an untouched island paradise, despite historical reality reflecting a past marred in severe human and wildlife exploitation. Although it is understandable to not celebrate and promote historical events that are at odds with the values of today, pruning mainstream perspectives of the past into comfortable shapes only hinders the ability of society to comprehend the grounds it stands on. Various stories told in this book demonstrate how false or modified narratives have encouraged misguided human imagination throughout the Galápagos' history, which have often had dire consequences. When Hennessy raises questions that center on idealized goals such as restoration ecology recreating pre-human conditions, or long-standing notions of human and natural histories being distinct, she draws on accounts that highlight where conservation science has not been immune to this dynamic, and that it has played a role in how the Galápagos has arrived to where it is now.

Regardless of whether or not you find the above synopsis intriguing, numerous aspects of this book are sure to appeal to readers of this journal. Accounts covering scientific exploration to the Galápagos, details on natural history and island biogeography, and stories about conservation work will be of interest, even if her framing of this information at times reflects that her background is not in conservation biology or restoration ecology. I enjoyed coming across a number of accounts that I was not previously aware of, such as the first record of trans-oceanic tortoise dispersal of a barnacle-covered Aldabra giant tortoise that had washed ashore in Tanzania in 2004, a 740 km journey! As a minor note, Hennessy states that it occurred in 2006 (p. 61), which is instead the year it was published (Gerlach et al. 2006). Moreover, I thought the accounts that centered on the network of contingent factors that ultimately led to the Galápagos being established as a national park were really fascinating and well laid out (Chapter 5). Also discussed are the influences of figures such as William Bebee, Rollo Beck, George Boulenger, Harold Coolidge, Julian Huxley, Herman

Melville, John Van Denburgh, and Victor Von Hagen, among others. But most notable, of course, is the approach of using Galápagos giant tortoises as a proxy to navigate human interactions with the archipelago. I found this to be a compelling method for piecing together the complex human-Galápagos history not only as it highlights how critical giant tortoises have always been to the human relationship with the islands, but also as it provides an approachable platform for which to address the uncomfortable truths of the past and present.

Nonetheless, as I read *On the Backs of Tortoises* I was somewhat conflicted on how a few points initially communicated. For example, I found myself scribbling question marks and re-reading various sections when Hennessy's narrative began to frame conservation science as a construct risen from colonialism and western idealism. I couldn't help but wonder whether or not some of her audience might interpret her introduction of these ideas in a way that obscures the very real importance of conservation work, regardless of poor practice or flaws therein? However, I suppose my biased perspective as a conservation biologist was hoping for immediate clarifying context, which is eventually laid out. As I read, "When tourists follow Darwin to the Galápagos islands today, they travel within the legacy of imperial exploration" (p. 26), my initial impression was that it seemed like a trivial point, if not philosophical cherry-picking; even experiences such as writing this review in Tucson, Arizona, are no less within the legacy of imperial exploration. Nonetheless, I suspect that taking time to reflect on where points of confluence among these concepts are, and what implications can be drawn from them, is exactly what she intended.

In some instances, however, I found Hennessy's view of hypocrisy in conservation practice off base. For example, when discussing the extensive efforts on the islands to eradicate invasive species, she states: "If conservation is centrally about sex and the reproduction of life, then it is equally about death and the extinguishing of life" (p. 149); and, "The survival of some species has come to depend on the elimination of others" (p. 150). Conservation is not "centrally about sex and reproduction," but instead the preservation and protection of unique genetic lineages, and the maintenance of diversity therein. Although invasive species removal involves the removing or killing of certain species, it definitely does not involve *sacrificing a species* to save another. On a local scale, sure. But framing the dynamic as she did in that instance seems misleading at best. Nonetheless, her concerns regarding the huge amount of resources that eradication efforts have required, and how effective—or ineffective—they have been, are understandable. Fortunately, progress in this realm is being made and past attempts have at least served as a learning tool to build from (e.g. Baker and Bode 2020).

As a final critique, and considering this book has a heavy focus on challenging the conservation identity of the Galápagos archipelago, and Ecuador by extension, I was disappointed to find that there was little discussion about the clauses in Ecuador's constitution that made it the first country

to establish “Rights of Nature,” which were ratified in 2008 and has maintained wide support by Ecuador’s populace. In fact, at the end of 2021, the highest court in Ecuador ruled in favor of applying the constitutional provision on the rights of nature to protect a small Andean forest reserve, Bosque Protector Los Cedros, which is largely encompassed by mining concessions (for context, see, Roy et al. 2018). Perhaps if this and other ongoing legal cases challenging the interpretation of Ecuador’s constitutional rights of nature—including the right to clean water and environmental consultation to local communities—were more of a focus at the time of her writing, it might have factored in more? Granted, none of these court cases concern the Galápagos specifically, and Hennessy did not intend to weigh in on what solutions the reader should consider for addressing socio-ecological issues. I suppose that I just couldn’t help but want the discussion to go further regarding conservation science and its future.

Although I have many other thoughts on the topic of conservation and the grounds it stands on, such digressions likely fall outside the purview of this book review, especially given that Hennessy stopped short of suggesting how her study can enact positive change. Nonetheless, her treatment on the environmental history of the Galápagos provides an engaging framework from which to discuss conservation science on the archipelago. Moreover, she is absolutely right when she states on the closing page that, “People cannot be considered, nor consider themselves, invasive species and at the same time develop a sense of responsibility and care for the place they live” (p. 222). Fortunately, the approach of including local communities as essential partners in conservation work combined with developing alternative means of sustainable income and empowering their members is slowly becoming common practice among many teams of conservationists working domestically and abroad—including the network of colleagues I have the privilege of working with in Ecuador. Ongoing efforts to adapt the theoretical basis and practical approaches in these ways are critical to progressing the field of conservation in a more meaningful and sustainable direction.

Overall, I think this book is well worth a read. The writing style is accessible and engaging, even if there are instances where I needed to take a moment to unpack the contents of her prose (e.g., “The history of the Galápagos has been forged

through the intersection of various processes—geological, climatic, and ecological, as well as political, economic, and scientific—that, though they span different geographies and operate on different temporal scales, are not so very distinct but come together on the backs of tortoises;” p. 15). For those reading a hardcopy of the book, as opposed to the audiobook, the reading is most frequently broken up by the urge to quickly flip to the wealth of footnotes located at the back. I suspect that nearly any reader will gain new bits of information or perspective from this volume due to what it offers in the form of historical content, fascinating backstories and accounts, and the numerous points of emphasis that Hennessy challenges the reader to consider. I also appreciated that Hennessy’s critiques are mostly fair and her framing of historical figures rightly placed them within the contexts of their time. My only regret is that I wish this book would have been as straightforward to review as it was to read given the amount of content and ideas that are touched on! In fact, I think this volume will be perfect for a roundtable discussion for undergrad or graduate reading groups. Regardless of whether or not you think you will like this book or take issue with any number of her points, *On the Backs of Tortoises* is sure to inspire engaging, and hopefully productive, discussions about conservation science and society on the Galápagos archipelago.

REFERENCES

- Baker, C.M., and M. Bode. 2021. Recent advances of quantitative modeling to support invasive species eradication on islands. *Conservation Science and Practice* 3:e246
- Gerlach, J., C. Muir, and M.D. Richmond. 2006. The first substantiated case of trans-oceanic tortoise dispersal. *Journal of Natural History* 40(41–43):2403–2408.
- Roy, B.A., M. Zorrilla, L. Endara, D.C. Thomas, R. Vanergrift, J.M. Rubenstein, T. Policha, B. Rios-Touma, and M. Read. 2018. New mining concessions could severely decrease biodiversity and ecosystem services in Ecuador. *Tropical Conservation Science* 11: 1–20.

We suggest the following format for citing this article:

Maynard, R. J. 2022. Book Review. On the Backs of Tortoises: Darwin, the Galápagos, and the Fate of an Evolutionary Eden. *Bibliotheca Herpetologica* 16(3):33–36.

Women in Herpetology—A Short Biography of Isabel Hoopes

C. Kenneth Dodd, Jr.

Florida Museum of Natural History, University of Florida,
Gainesville, Florida 32611 USA, terrapene600@gmail.com

Prior to World War II, there were few women publishing on herpetology in the United States, and most of them were associated with major research institutions. Helen Gaige (1886–1976, University of Michigan), Anna A. Wright (1882–1964, Cornell University, although not on staff), Alice Boring (1883–1955, University of Maine and Wellesley College, although most of her field research occurred later in China), Doris Cochran (1898–1968, USNM), Inez Whipple Wilder (1871–1929, Smith College), Olive Stull (1905–1968, Harvard College and Purdue University), Grace Orton (1916–2003, Carnegie Museum), and Mary Dickerson (1866–1923, AMNH) are reasonably well known today (see Adler, 1989, 2007, 2012). Women were intensely discriminated against when attempting to enter graduate programs and, if graduated and professionally hired, were generally relegated to lesser positions than their male counterparts (e.g., Harris, 1983). Even in academia, women were expected to take up laboratory experimental research or work in museums, usually as assistants, rather than venture into the field or assume the title of curator. However, there are a number of lesser-known women without advanced degrees, or even degrees in biology, who made significant early contributions to advance our appreciation and knowledge of amphibians and reptiles at a time when few other naturalists did. Here, I present a short biography of Isabel Hoopes¹ of Massachusetts (Figs. 1, 2).

Isabel Hoopes was born in Providence, Rhode Island, on 12 November 1899 to the Reverend Wilford Lawrence Hoopes and Lillie Edith Merrill Hoopes. I could find nothing on her early life except that she attended the Cambridge School for Girls in Cambridge, Massachusetts, a college preparatory school established to prepare girls for entry into Radcliffe College. Isabel attended Radcliffe College, Class of 1921, and was nicknamed “Lawyer” in a story on the graduating class in the *Radcliffe News*.² During her time at Radcliffe, she was a member of the Science, German, and Glee Clubs, and she took part in numerous drama productions³. She graduated cum laude with a Bachelor of Arts degree in English.

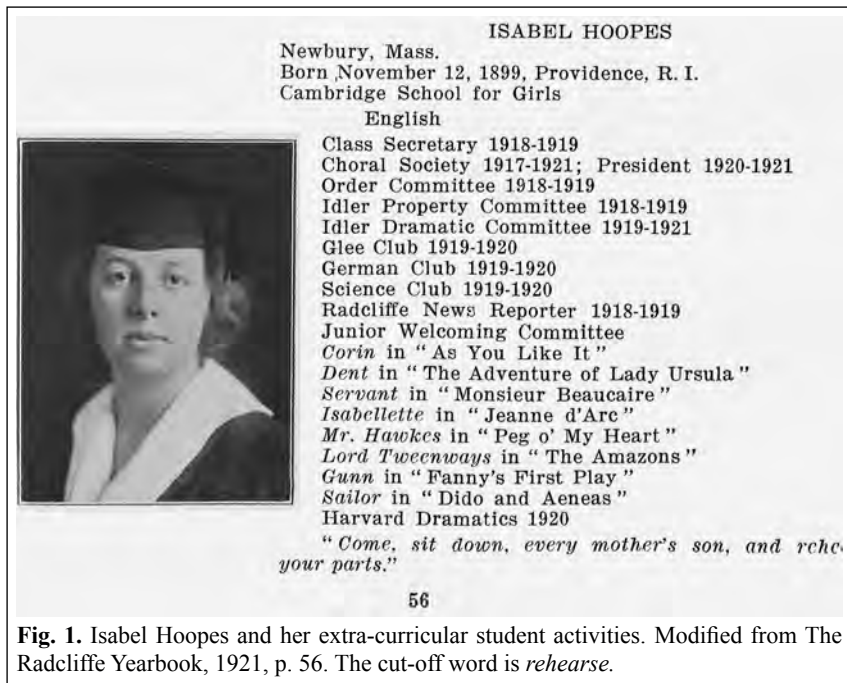
Exactly what motivated Isabel’s interest in amphibians and reptiles is unknown, but as early as 1926 she had donated several frogs and snakes from Newbury, Massachusetts, to the Boston Society of Natural History (BSNH, 1926). She was appointed as an “Assistant in Herpetology” in late 1928 or early 1929⁴ at the BSNH when Harold Babcock (1886–1953) was the Herpetologist and Francis Harper (1886–

1992), who authored a number of papers in herpetology, was the Mammalogist. She held that position through the end of 1931, then became Associate Curator of Reptiles and Amphibians from January 1932 through at least July 1938. After the BSNH ceased publication of the *Bulletin* in 1938 (Johnson, 2004), she continued as Associate Curator until ca. June 1939 after which she is listed as Curator of Reptiles and Amphibians in *The New England Naturalist*, a publication of the New England Museum of Natural History (NEMNH)⁵. Hoopes never used the BSNH or the NEMNH as her professional address, preferring her home address in Rowley, Massachusetts, where she lived her entire life. She never married, and was always referred to as “Miss Hoopes” in correspondence.

I could find no indication of what Isabel did for a living or how she occupied her time in the latter part of her life, except that she was active in civic clubs and in raising dogs. In the 1940 census, Isabel is listed as living with her parents in Rowley, and that she was single. Her last journal publication in 1947 still listed her address as RFD, Rowley. In the mid-1940s, she became active in efforts to protect the nearby Parker River National Wildlife Refuge from intense local opposition and bills proposed to reduce its size or eliminate it altogether. She both testified at public meetings and wrote letters supporting the refuge⁶. An opponent of “Miss Hoopes,” John P. Marquand, in a letter dated 15 November 1945 to John Flanagan, U.S. House Committee on Agriculture, called her “a most respected citizen, [who] is primarily a naturalist with most of the naturalist’s intolerances.” One letter in the Committee Report stated that her property bordered part of the refuge. A photograph of Isabel appears in the 16 July 1945 issue of *Life Magazine* during the great “clam battle,” as it came to be known locally (Fig. 2). President Truman refused to support abolishment, and the refuge still is protecting coastal natural resources today. She died in Newburyport on 17 December 1973 at the age of 74⁷. She is buried at Oak Hill Cemetery in Newburyport.

HERPETOLOGICAL LEGACY

Isabel Hoopes published 16 papers on the natural history and care of amphibians and reptiles in captivity, plus 20 updates on the activities of the Boston Society of Natural History in its *Museum Notes* section. It is apparent from her short



papers that she kept careful notes on her subjects, and carried out small experiments while observing them. Her best-known publications (Hoopes, 1936, 1962; Figs. 3a, b) involve detailed information on how to care for reptiles in captivity. The 1936 edition is certainly one of the earliest manuals on the subject, and was written for professionals as well as advanced naturalists. It incorporates information on housing, physiological requirements, feeding, shedding, habitat enrichment, and other topics, and includes black and white photographs taken by Isabel to illustrate the topic being discussed. The 1962 edition is much expanded in a larger format (15.5 x 22.8 cm versus 14 x 19.5 cm). The text has been revised and updated with much better black and white photographs, and the booklet was professionally illustrated by Henry B. Kane. Henry Bugbee Kane (1902–1971) was a well-known natural history illustrator from Cambridge, Massachusetts. In addition to illustrating numerous books for other authors, Kane wrote and illustrated over a dozen of his own nature books for children (see <https://www.cherrygallery.com/journal-posts/henry-kane-woodcut>; accessed 15 February 2022). A list of Isabel Hoopes' publications is presented below.

There are currently four herpetological specimens in the Museum of Comparative Zoology from her: two *Scaphiopus holbrookii* and two *Lithobates septentrionalis*. In 1930, the BSNH was said to contain 600 herpetological specimens, all from New England (Creed, 1930). These were later transferred to the MCZ by Thomas Barbour (1884–1946) when the BSNH ceased operations. The identity or whereabouts of the specimens mentioned in BSNH (1926) is unknown. There is correspondence between Hoopes and Roger Conant in the Conant papers in the AMNH⁸, but the nature of this correspondence is unknown to me. She is not acknowledged in Conant's 1958 field guide.

As noted above, Isabel took black and white photographs of amphibians and reptiles that she used in her publications and perhaps in educational programs. I have in my possession 100 of her glass lantern slides in their original box (Fig. 4). Although Hoopes' name does not appear on the box or slides, several are reproduced in Hoopes (1936 [but not the 1962 edition], 1938d). These would have been taken in the early 1930s, and are of reasonably good quality for that time period (Figs. 5a-d). The provenance of these slides is interesting and was relayed to me by the seller, Roger Morrill of North Reading, Massachusetts: "I purchased them from a retired science teacher from Newbury, Massachusetts. Years ago, a couple of his students told him there was some interesting items at the local dump. When he went there, he found many of Isabel's personal items. Included were these slides and many 8mm and 16mm home movies. He was told



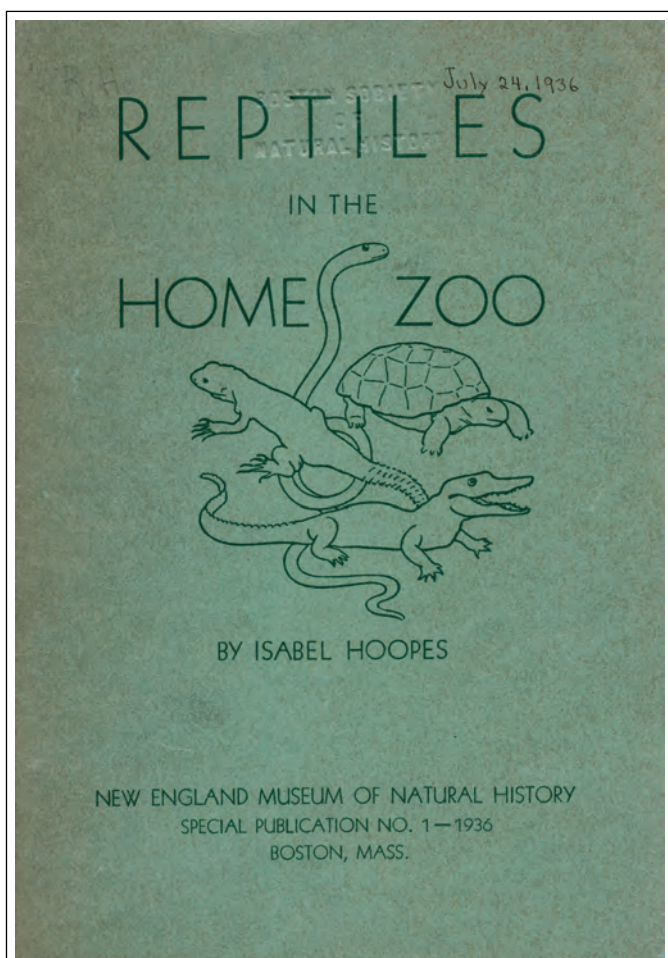


Fig. 3a. Reptiles in the Home Zoo, 1936. Courtesy of Aaron Bauer.

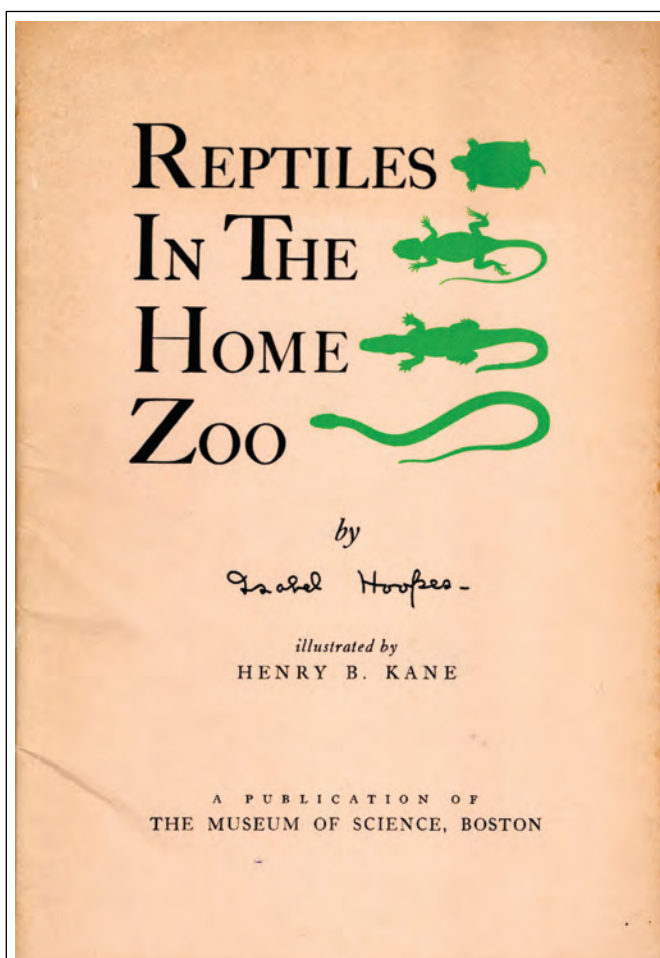


Fig. 3b. Reptiles in the Home Zoo, 1962.

that when Isabel died, not agreeing with her life style, her brother took all her personal possessions to the dump. I have since sold all the movies." I subsequently located information on the sale of the movies, providing some indication of their content. One movie, dated 1937, was labeled "Frogs, Toads and Snakes." Another from the 1930s says it "shows woman feeding birds and handling snakes." Most of the films included dogs (Hoopes raised Cairn Terriers and Great Danes) and pet monkeys, and one said it was taken in Europe⁹. I do not know who purchased the movies or their present location.

THE HOOPES FAMILY

I have been unable to locate any information about Isabel's "lifestyle," as mentioned above, except that she was interested in nature, particularly amphibians and reptiles, which might have appeared unseemly to an aristocratic Massachusetts family at that time. Her father, Wilford Lawrence Hoopes, was born on 23 December 1863 in Philadelphia, Pennsylvania. He married Lillie Edith Merrill (26 January 1861–12 December 1959) in 1896 in Boston. In addition to Isabel, they had one son, Thomas Temple. Wilford attended the University of Pennsylvania (B.S., 1884), Harvard College (B.A., 1891)

and the Harvard Episcopal Theological School (B.D., 1894). He also had a connection with the Bussey Institution¹⁰ at Harvard from 1906–1908, but the nature of this association is unknown. The association of her father with Harvard likely influenced Isabel's matriculation at Radcliffe, the woman's college associated with Harvard at that time.

Wilford resigned as Curate of Emmanuel Church (Episcopal), Boston, in 1898 and moved to Providence, where he was pastor at Calvary Church. Isabel was born in Providence shortly thereafter. In 1910, he moved his family to Newburyport, Essex County, Massachusetts, where Isabel lived the rest of her life, becoming Assistant Rector at St. Paul's Episcopal Church. His obituary says he retired in 1912, but he is listed on St. Paul's Rectors & Clergy plaque as Assistant Rector beginning in 1913 with no end date listed (church records were destroyed in a 1920 fire). Her family was well-off financially—in 1913, Wilford bought a 40,000 square foot mansion (the Sewall Place) as a "winter residence" in Newburyport. He died on 31 July 1945 at the age of 81¹¹. Isabel's brother, Thomas Temple Hoopes (1898–1981), was a Curator at the Metropolitan Museum of Art, and later at the St. Louis City Art Museum. He was in the Harvard undergraduate class of 1919 and later earned a Ph.D. from that



Fig. 4. Box and glass slides belonging to Isabel Hoopes. Author's collection.

institution, eventually endowing the Thomas T. Hoopes Prize awarded to Harvard undergraduates. He published extensively on art history. As noted above, it appears Thomas and Isabel had a difficult relationship. Isabel's father, mother, and brother are buried in Mount Auburn Cemetery, Cambridge, Massachusetts. It is telling that Thomas had Isabel buried in Newburyport rather than in the family plot in Cambridge, and that he disposed of her possessions in a landfill.

ACKNOWLEDGEMENTS

I thank Roger Morrill for providing information on the origin of the Hoopes glass slide collection. Kristen Fehlhaber (Museum of Old Newbury, Newburyport) and Sharon Spieldenner (Newburyport Public Library Archival Center) provided many newspaper and yearbook photos. Bronson de Stadler (St. Paul's Episcopal Church, Newburyport) supplied information on Wilford Hoopes' affiliation with the church. Aaron Bauer checked copies of the *Bulletin of the Boston Society of Natural History* and the *New England Naturalist* for Ms. Hoopes' affiliation and publications in those journals. Marian Griffey, Maureen Donnelly, and Samantha Royle offered comments on the manuscript.

NOTES

1. Isabel Hoopes of Newbury may be confused with Isabel Hoopes Grinnell (1898–1988), originally of West Chester, Pennsylvania. Grinnell was an Assistant Curator in the Department of Greek and Roman Art at the Metropolitan Museum, New York.
2. Radcliffe News, June 1921, p. 7. Unfortunately, the Radcliffe News article did not state why she had this nickname.
3. The Radcliffe Yearbook for 1921. Hoopes was involved in many aspects of the theatre, particularly acting (Fig. 1). She continued to sing in choral societies in Newburyport.
4. Isabel's name first appeared on the inside cover in January 1929, and H.L. Babcock noted that she had recently joined the staff. Whether she was a paid staff member is unknown.
5. The *Bulletin of the Boston Society of Natural History* was published through mid-1936 when the name was changed to the *Bulletin of the New England Museum of Natural History*.
6. Isabel Hoopes' letter in support of Parker River NWR is reproduced on pp. 63–65 *In Parker River National Wildlife Refuge: Hearings Before the Subcommittee on Conservation of Wildlife Resources of the Committee on Merchant Marine Fisheries, House of Representatives, Eightieth Congress on H.R. 3487 and H.R. 3578, June 19, 20, 25, 1947. U.S. Government Printing Office, Washington, DC., 1947. In 1965, she donated 22 acres of her land to the Essex County Greenbelt Association that bordered the Parker River (Daily News, 29 September, 1965, Newburyport).*
7. A notice of Hoopes' death is in the Daily News, 18 December 1973, Newburyport, p. 10. She was listed from 65 Orchard Street, and died in Anna Jaques Hospital. No cause of death was indicated.
8. Correspondence between Roger Conant and Isabell Hoopes: AMNH File — Box: 21, Folder: 1 Identifier: Mss .C667. No collection records in AMNH in her name. AMNH did not answer request to verify correspondence.
9. In the *Bulletin of the Boston Society of Natural History* No. 57 (1930), Babcock wrote the notes section for reptiles and amphibians and mentioned that Hoopes had sailed for Europe to visit continental museums. It is not known whether these were art or natural history museums. In November 1928, she gave a talk in Newburyport about her trip to Germany (Newburyport Daily News, 15 November 1928, p. 8).
10. The Bussey Institution was established to promote agricultural experimentation and operated by Harvard from 1883–1936. The land for the institute was donated to Harvard by Benjamin Bussey (1757–1842) to advance horticulture and agricultural research. Bussey's land (120 acres) was combined with a land donation by James Arnold (1781–1868) and today forms the Arnold Arboretum. Wilford Hoopes' association with the Bussey Institution is listed in the Harvard University Directory (1913, Harvard University Press, Cambridge, p. 396).
11. Information on Wilford L. Hoopes is available in numerous newspaper articles in the Newburyport Daily News, available online at: <https://newburyport.advantage-preservation.com>. His obituary appears in the 1 August 1945 edition of this paper.

PUBLICATIONS OF ISABEL HOOPES

1929. Ortenburger's "Whip Snakes and Racers": A review. *Bulletin of the Boston Society of Natural History* No. 51:15. [review signed I.H.]



Fig. 5. Representative glass slides from the Hoopes collection. a. Eastern Spadefoot, b. Wood Turtle, c. Eastern Box Turtle, d. Eastern Rat Snake.

1930. *Bufo* in New England. *Bulletin of the Boston Society of Natural History* No. 57:13–20.

1936. Reptiles in the Home Zoo. *New England Museum of Natural History Special Publication* No. 1, 64 pp. [sold for \$0.25]

1937a. The spadefoot toad in Essex County, Mass. *Bulletin of the New England Museum of Natural History* No. 85:12–13.

1937b. The care of tadpoles. *Bulletin of the New England Museum of Natural History* No. 84:9–11.

1937. The care of tadpoles. *New England Museum of Natural History Museum Leaflet* No. 4. 4 pp. [text same as above but layout different]

1938a. Further notes on *Tropidophis melanurus* Schlegel in captivity. *Copeia* 1938:203–204. [address simply Rowley, MA]

1938b. Marbled salamander from New Hampshire. *Bulletin of the New England Museum of Natural History* No. 87:16–17.

1938c. Snakes Alive and How They Live: A review. *Bulletin of the New England Museum of Natural History* No. 86:19.

1938d. Do you know the mink frog? *New England Naturalist* 1:4–6.

1939a. They stand by their colors. *New England Naturalist* 2:3–7.

1939b. Does the museum want it. *New England Naturalist* 3:22–26.

1940. An almanac of frogs and toads. *New England Naturalist* 6:7–9. [with H.L. Babcock, also issued as a separate]

1943. A semi-albino milk snake in Massachusetts. *Copeia* 1943:124–125.

1947. Notes on the Spadefoot Toad in captivity. *Copeia* 1947:138–139.

1962. *Reptiles in the Home Zoo*. The Museum of Science, Boston. 58 pp. [sold for \$1.25]

MUSEUM NOTES IN THE BULLETIN OF THE BOSTON SOCIETY OF NATURAL HISTORY

1930. Museum notes. Reptiles and amphibians. No. 54:16–17. [signed as I.H.]

1930. Museum notes. Reptiles and amphibians. No. 55:37–38. [signed as I.H.]

1930. Museum department reports. Reptiles and amphibians. No. 56:33–34. [under Isabel Hoopes as are all subsequent contributions]

1930. Museum notes. Reptiles and amphibians. No. 59:37.

1931. Museum department reports. Amphibians and reptiles. No. 60:40–41.

1931. Museum notes. Amphibians and reptiles. No. 61:21–22.

1932. Museum notes. Amphibians and reptiles. No. 62:24–25.

1932. Museum notes. Amphibians and reptiles. No. 63:32.

1932. Museum department reports. Amphibians and reptiles. No. 64:19–20.

1932. Museum notes. Amphibians and reptiles. No. 65:7.

1933. Museum notes. Amphibians and reptiles. No. 66:9.

1933. Museum notes. Amphibians and reptiles. No. 67:9–10.

1934. Museum notes. Amphibians and reptiles. No. 70:7.

1934. Museum notes. Amphibians and reptiles. No. 71:9–10.

1934. Museum department reports. Amphibians and reptiles. No. 72:18–19.
 1934. Museum notes. Amphibians and reptiles. No. 73:8–9.
 1935. Museum notes. Amphibians and reptiles. No. 75:15.
 1935. Museum department reports. Amphibians and reptiles. No. 76:18.
 1936. Museum notes. Amphibians and reptiles. No. 78:13.
 1936. Museum department reports. Amphibians and reptiles. Bulletin of the New England Museum of Natural History No. 80:20–21.

REFERENCES

- Adler, K.K. (ed.). 1989. *Contributions to the History of Herpetology. Volume 1*. Society for the Study of Amphibians and Reptiles, Contributions to Herpetology, No. 5. 202 p.
 Adler, K.K. (ed.). 2007. *Contributions to the History of Herpetology. Volume 2*. Society for the Study of Amphibians and Reptiles, No. 21. 389 p.
 Adler, K.K. (ed.). 2012. *Contributions to the History of Herpetology. Volume 3*. Society for the Study of Amphibians and Reptiles, Contributions to Herpetology No. 29. 564 p.
 BSNH (Boston Society of Natural History). 1926. Museum Notes. *Bulletin of the Boston Society of Natural History* No. 41:8.
 Creed, P.R. (ed.). 1930. *Milestones: The Boston Society of Natural History, 1830–1930*. Boston Society of Natural History, Boston. 117 p., 39 plates.
 Harris, B.J., 1983. *Margaret W. Rossiter. Women Scientists in America: Struggles and Strategies to 1940*. Johns Hopkins University Press, Baltimore. xviii, 439 p.
 Johnson, R. I. 2004. The rise and fall of the Boston Society of Natural History. *Northeastern Naturalist* 11:81–108.

We suggest the following format for citing this article:

- Dodd, C. K. Jr. 2022. Women in Herpetology—A Short Biography of Isabel Hoopes. *Bibliotheca Herpetologica* 16(4):37–42.



A Sure and Certain Cure for the Bite of a Rattlesnake: 18th Century Folk Medicine and an Early Case of Herpetological Satire

Robert W. Mendyk

Department of Herpetology, Audubon Zoo, 6500 Magazine Street,
New Orleans, LA 70118 USA, rmendyk@auduboninstitute.org
Department of Herpetology, Smithsonian National Zoological Park,
3001 Connecticut Avenue NW, Washington, D.C. 20008, USA

INTRODUCTION

It can be difficult to find humor or amusement in as grim and macabre a subject as venomous snakebite, especially when considering the innumerable loss of human lives to snakebite throughout history to the present day. But, if there is any particular aspect of venomous snakebite that is more likely to be considered amusing than others, it would probably be the long and storied history of snakebite treatments, antidotes and sure cures that have been proposed and attempted over the last several centuries. In stark contrast to modern therapies which are grounded in rigorous scientific studies and represent the latest advances in toxinology, toxicology, and emergency medicine, snakebite treatments prior to the early 20th Century tended to be crass, anecdotal, and ineffectual, and stemmed largely from folklore, superstition, and a poor understanding of the properties of snake venoms and their toxicological effects (Klauber, 1956). Recovering from venomous snakebite in this era with treatment was just as much a game of chance as if left untreated, and in many cases, ill-advised folklore remedies probably exacerbated the impacts of bites, leading to further complications, suffering and death.

Many of the folklore remedies proposed for venomous snakebites in the United States during the 18th and 19th Centuries may seem comical today in relation to what is now known about snake venoms, snakebite, and emergency medicine (for an excellent review of historical snakebite treatments, see Klauber, 1956). Long gone are the days of burying bitten extremities in mud (Anonymous, 1855) or applying the anuses of live chickens to bite wounds (Ingalls, 1842), dubious poultices and topical treatments of salt and gunpowder (Barton, 1793), pulverized charcoal and hog's lard (Anonymous, 1830), clay and urine (Anonymous, 1804) and turpentine (Anonymous, 1851, 1860), and tinctures and decoctions of ammonia spirits (Anonymous, 1842), melted hog's lard (Stokes, 1822) and strychnine (Anonymous, 1895). Still, reflecting back on archaic snakebite treatments of the

past offers a valuable glimpse into an era deeply impacted by a paucity of reliable scientific and medical research, testing, and controls. Here, I recount one particularly outlandish folklore treatment from the late 18th Century previously discussed by Palmer (2004) that typified venomous snakebite cures of the era in what is today the United States, and call attention to a follow-up satirical account that parodied this treatment and the absurdity of folklore snakebite treatments more than a century later.

A SNAKEBITE CURE FOR "THE BENEFIT OF MANKIND"

In his book *Landscape with Reptile: Rattlesnakes in an Urban World*, Palmer (2004) discussed a late 18th Century snakebite 'sure cure' developed by Abel Puffer (1737–1813), a farmer living in Stoughton, Massachusetts. According to Palmer (2004), Puffer's treatment was first referenced in a 1764 letter appearing in the *Massachusetts Gazette and Boston News-Letter* (16 August) penned by Moses and Mary Littlefield which described an incident involving their 10-year old daughter who was bitten on the foot by a Timber Rattlesnake (*Crotalus horridus*). As treatment, she was initially given Sweet Oyl (= olive oil) and Rhubarb, but her condition continued to worsen. Upon learning of her declining health, Puffer visited her and administered both internal and external medicines which were claimed to have reduced swelling and resulted in the discharge of 'virulent matter' from the lanced bite wound, and the girl eventually made a full recovery. Palmer (2004) suggested that the letter was probably written and planted in the newsletter by Puffer himself, perhaps in an effort to exploit his treatment in exchange for gifts or property, as was common practice at that time.

Specific details of the treatment were kept secret by Puffer for several years until he eventually revealed his proprietary cure in a correspondence letter appearing in a 1771 almanac for "*the benefit of mankind*" (Puffer, 1771):

“A sure and certain cure for the bite of a Rattle-Snake made Public by Abel Puffer, of Stoughton”

“As soon as may be after the Person is bit, cut a Gash or Split in the Place where the Bite is, as the Teeth went in, and fill in full of fine Salt. Take common Plantain and pound it, add a little Water to it, then squeeze out the Juice, and mix it with clean Water; then make a strong Brine with fine Salt and the Juice, till it will not dissolve the salt; then make a Swath or bandage with Linnen Cloth, and bind it around just above the swelling (but not too tight); then wet the Bandage with the afore-mentioned Brine, and keep it constantly wet with the Brine — for it will dry very fast — and keep stroking the Part with your Hands as hard as the Patient can bear; toward the Cut you made, and you will soon see the Poison and virulent Matter flow out of the Cut; and it will often flow so fast that it will swell below the Cut, and if it should, you must cut below the swelling to let out the virulent Matter; and it will not leave running till it is discharged. You must keep the Bandage moving downwards as the Swelling abates. It is proper to give the Patient something to defend the Stomack, as Sweet Oil, Saffron, or Snake Root. It very often bleeds after the Poison is out; but be not surprised at that — it is Good for it. It will run some time after the Poison is out; there must be Care taken that none of the poison that runs out gets to any sore, or raw Flesh, for it will Poison the Person. I expect that some will slight this Publication, for the Remedies being so simple a Thing; but I hope no one will so slight it, if he is bit, as to neglect trying the Experiment, and the Effect will prove what I have said to be true. I should not have published this had I not been certain of its performing the Cure by my own Experience; for I have cured two Persons dangerously bit, and a Horse and a Dog, with no other Thing but what is mentioned in the before Direction, and make this Public for the Benefit of Mankind, tho I have been offer’d a considerable Sum by some Persons to make it known to them, but then it must be kept as a secret.”

While apparently unique in its list of ingredients and their methods of preparation, Puffer’s sure cure was not unlike many other proposed snakebite treatments of the era which invoked an assortment of botanicals and other ingredients that required considerable preparation times (e.g., Anonymous, 1845; Mease, 1834; Harris, 1855; Foreman and Maoney, 1857; Klauber, 1956). Iterations of Puffer’s (1771) cure were subsequently published in various newspapers and almanacs; an abridged version appeared some 50 years later (Anonymous, 1831) and his original treatment was reprinted in Huntoon’s (1893) *History of the Town of Canton*. However, like most other folk remedies and sure cures proposed for snakebite during that era, it appears that Puffer’s treatment never gained traction or widespread use and faded into obscurity until it was resurrected some 128 years later as the target of satire as part of a highly successful literary hoax.

PEARSON’S PARODY—EMBELLISHING THE ABSURDITY OF FOLKLORE SNAKEBITE TREATMENTS

Edmund Lester Pearson (1880–1937) was an American librarian and author that penned a regular column focused on topics related to books and libraries for the *Boston Evening Transcript* during the first two decades of the 20th Century. For many of his column entries, Pearson would employ fictitious characters to satirize some of his personal grievances and the shortcomings of the library world, which occasionally sparked debate amongst the librarian and book trade communities (Wiegand, 1979).

In one of his pieces for the column in 1907, Pearson included a brief passage posing as an excerpt from a late 18th Century almanac which recommended that libraries be closed for six weeks out of the year to reclaim, re-shelve and repair tattered books and examine each work to ensure that none with immoral or “debasement” characters have snuck into the collection, recommending that librarians “cast out and destroy any book which is merely frivolous, and empty of all serious meaning, for the true object of literature is to instill wisdom and to lead to habits of grave meditation, and there always are those whose vapid minds will feed, if it be allowed, on nothing but that which amuses for the moment” (Pearson, 1907). This commentary led to heated exchanges within the librarian community over the purported decline of professionalism within the field and the true role of the librarian, namely whether there was still a place for the old-fashioned “real booklover” librarian portrayed in Pearson’s account (Wiegand, 1979). Having closely followed the ensuing spectacle, Pearson was encouraged by his librarian colleague John Cotton Dana (1856–1929) to expand upon this brief work and prepare a more substantive account of the same theme (Pearson, 1923). The resulting publication was a 34-page pamphlet released in 1909 as *The Old Librarian’s Almanack* (Pearson, 1909), which purported to be a reprinting of a “long-lost” almanac originally published in New Haven, Connecticut in 1773 of which only two known copies were still in existence (Fig. 1). Constructing an elaborate backstory to conceal the *Almanack’s* true origins, Pearson penned the pamphlet under the alias of “Philobiblos”, which he used as the pseudonym for Jared Bean, a fictitious curator or librarian of the non-existent “Connecticut Society of Antiquarians”.

The *Almanack* begins with a modern-day preface by Pearson describing in detail the rediscovery of the work (in the library of a deceased lawyer he was asked to catalogue) and peculiar biographical details of its alleged author Jared Bean, such as his rejection of the results of the American Revolution and his continued allegiance to King George III, his belief that librarians should never marry, and his subsequent death as a bachelor. This was followed by actual astronomical and meteorological reports taken from a 1774 New Haven, Connecticut almanac, and then original poetry and literary productions by Pearson. Some of these original productions included over-the-top satirical commentary and

interjections of his scorn for book thieves (e.g., “For him that stealeth a Book from this Library, let it change to a Serpent in his hand and rend him... let Book-worms gnaw his Entrails in token of the worm that dieth not, and when at last he goeth to his final Punishment let the Flames of Hell consume him for ever and aye”) and instructions on how to question applicants seeking to use the library and who should and should not be admitted, with such undesirables including women, individuals younger than 20, politicians, astrologers, necromancers, gypsies, sufferers of infectious disease, and persons whose apparel is “so Gaudy or Eccentric as to attract the Eye” (Pearson, 1909). Concluding the *Almanack* was, as Pearson later admitted, an “outrageously farcical parody” (Pearson, 1923) of Abel Puffer’s (1771) snakebite treatment from more than a century earlier which retained the original title and authorship of the account to help uphold the appearance of historical authenticity:

“If the Sufferer be Bit in the Leg (as it is very likely to happen) let him be plac’d in a revers’d position; that is, with his Head down and his Feet in the Air — it may be most convenient to lean him so against a Wall or Fence, or if neither be at hand, then against a Tree or Bush.

Then, without any Delay whatsoever, let there be appli’d to the place where the Fangs have punctur’d the Skin a Plaister made in the following manner: Beat to a soft or pulpy consistency six Plantain leaves that have previously been wash’d. Mingle them with 12 drops of Liquor obtained in this fashion:

Soak in half a cup of Rain Water the Heart of a large Gander, add a third part of an ounce of the dry’d roots of the Yarrow, some bruise’d Colewort, a spoonful of the Blue Flag, dry’d & powder’d, four or five stalks of the common Pennyroyal, a half-ounce of the Rind of Roasted Crab apples, some preserv’d blossoms of Alecumpane, and eight Peppercorns. This Liquor should simmer slowly for forty-eight hours, and when it is about finish’d, add a few seeds of the Indian Gourd, removing them, however, at the end of an Hour.

When the drops from the resulting Liquor are mix’d with the paste of the Plantain leaves, the Plaister should be appli’d on the Wound, and mark that all depends that this is done within ten minutes from the time when the Sufferer was Bitten. (It may be well that a Minister of the Gospel be sent for, if so be it that one is at hand.).

Then require the Sufferer to move his Limbs about, at first slowly, now with increasing speed, til he do thrash them about with all the Vigour and Rapidity in his power. After this, let him rise, and run in a circle, or nearly so, first giving him to drink half a glass of Jamaica Rum. When he be ready to fall from Dizziness (which flushes the Brain with Blood) again apply a second Plaister, like the first. Tokens of improving Health are

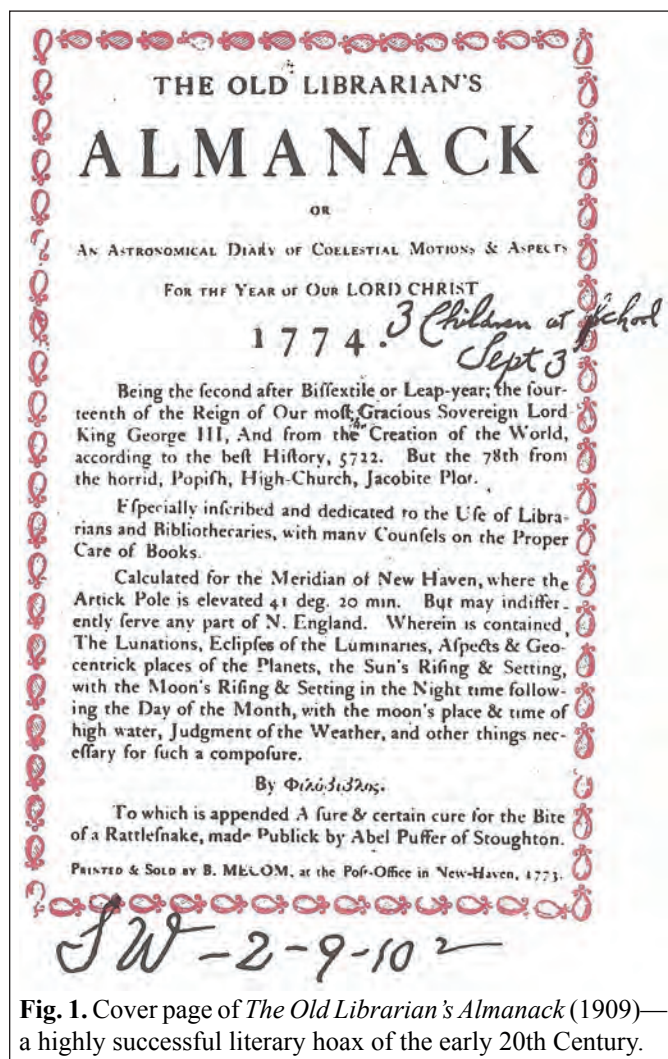


Fig. 1. Cover page of *The Old Librarian's Almanack* (1909)—a highly successful literary hoax of the early 20th Century.

sure to be seen in the Sufferer, if not, Prayers had better be address'd to Providence.” (Pearson, 1909)

Prior to its official publication, an advanced copy of the *Almanack* was acquired by an editorial writer for the *New York Sun*, who favorably reviewed the work for his column without ever questioning its authenticity (Anonymous, 1909). Several additional newspapers including the *New York Times* (Anonymous, 1910a) and *Hartford Courant* (Anonymous, 1910b), and literary reviews (Anonymous, 1910c) followed suit with similar accounts which also failed to raise any suspicions.

Later that year during a private reception held in his honor at the Newark Free Public Library where his co-conspirator John Cotton Dana was head librarian, Pearson embellished and poked fun at his literary hoax by presenting several fictitious commentaries he claimed to have received from prominent figures praising the *Almanack* (Wiegand, 1979). Perhaps most notable was an account by famed naturalist, game hunter and former US President Theodore Roosevelt, who purportedly found the *Almanack* most interesting, penning his correspondence while on safari in East Africa:

"I have just read your Old Librarian's Almanack aloud to Kermit and the assembled chiefs of the tribe of Kafoozelum. It's bully! To say that I am delighted is to put it mild, which I never do. Frankly, since I wrote the history of my regiment, there has been nothing like it. To show my appreciation, I have shipped to the Newark Public Library three Bongos (father, son, and maiden aunt) and a purple spotted giraffe.

Excuse me now; - there is a White Rhinoceros coming down the road" (Wiegand, 1979)

In reference to his snakebite parody, Pearson also shared fictitious correspondence from a Bezaleel Puffer, the purported great-great grandson of Abel Puffer, who expressed disapproval of the *Almanack's* snakebite account by threatening litigation and calling for a public apology and restitution for libel and the sully of his ancestor:

"Law Office of Hezeiah Spriggins - Stoughton, Mass., Jan. 20, 1910.

J.C. Dana, Esq.

Sir,

My client, the hon. Bezaleel Puffer, selectman of the town, desires me to inform you that he does not propose to endure the insult put upon his great-great grandfather, the late Dr. Abel Puffer, in a certain scurrilous work called the Old Librarian's Almanack.

The courses which he leaves open to you are a public apology, together with the recall and destruction of the entire edition, and the payment of \$5,000 within ten days to the Hon. Mr. Puffer. The alternative will, of course, be a suit for libel, in which the damages will be named at \$25,000.

Respectfully yours,

H. Spriggins" (Wiegand, 1979)

Publicly, Pearson continued to perpetuate his hoax and cloud its true origins, although various discoveries and "exposures" eventually came to light by late 1910 (Anonymous, 1911) which essentially put an end to the hoax (Wiegand, 1979). Even after its exposure, Pearson (1911) penned an editorial for the journal *Public Libraries*, objecting to the book's categorization in libraries as wit and humor, insisting instead that it belonged on the bookshelf with other almanacs. More than a decade later, some publications still referred to the *Almanack* as an authentic historical work, including a 1921 account appearing in the *Bulletin of Pharmacy* that referenced its snakebite treatment account as "*the last word in therapy in its day*" (McGregor, 1921).

Later in a memoir, Pearson (1923) explained that his hoax was designed to delude "*any intelligent reader for no longer*

than 5 minutes", and that it was purposely "*sown thick with anachronism*", "*unduly archaic language*", and "*innumerable clews of modern origin*". He maintained a scrapbook of the publicity generated by his *Almanack* and looked back fondly on the experience as a measure of success for his first literary work, but also expressed great frustration with how many people, particularly his librarian colleagues and literary reviewers, did not recognize the work as satire, leaving him a "*bewildered feeling about antiquarian research and the writing of book-reviews*" (Pearson, 1923).

CONCLUDING REMARKS

There are no indications that Pearson had any real connection to, or affinity for reptiles or venomous snakebite therapies, and it remains unclear why he specifically chose Puffer's (1771) snakebite treatment to satirize. It may have simply been happenstance, with Pearson stumbling upon the account while perusing 18th Century almanacs for source material for his *Almanack* and recognizing it as a prime target to parody. Nevertheless, Pearson's (1909) account does illustrate at least some level of familiarity with venomous snakebite and more modern therapies by describing precisely the opposite of what should be done in the case of an envenomation, such as consuming alcohol, standing upside-down, thrashing about and flailing the arms rapidly, and running around in a circle.

Early examples of herpetological satire from the last several centuries exist in various forms including, but not limited to political discourse (e.g., Americanus, 1751; Anonymous, 1782; Gilary, 1782), fables (e.g., Boothby, 1809; Murray, 1891; Dunsany, 1915), and literary productions (e.g., Masson, 1921; Bettelheim, 2021). While clearly not aimed at a herpetological or scientific audience, at more than 110 years-old, Pearson's (1909) *The Old Librarian's Almanack* precedes another parody of the same subject appearing in the 1940 issue of the satirical journal *Ichtherps* which proposed ginger beer as an effective cure for venomous snakebite (Peshtego, 1940). It also predates other, more contemporary satirical productions such as the chapter on catching, handling and keeping venomous snakes in Rose's (1950) *Reptiles and Amphibians of Southern Africa*, the journals *Dopeia* (first produced in 1940 as a parody of the American Society of Ichthyologists and Herpetologists' journal *Copeia*) and *Herpervertological Review* (first produced in 1977 as a parody of the Society for the Study of Amphibians and Reptiles' journal *Herpetological Review*), and Clarkson and Leprechaun's (2021) comprehensive field guide to *The Snakes of Ireland*.

Through his successful literary hoax and satire of Puffer's (1771) proposed sure cure, Pearson (1909) succeeded in finding humor in an otherwise difficult subject by taking a witty jab at an archaic era when snakebite treatments were plagued by folklore and widespread ignorance with regards to snake venoms and their effects. For such an accolade, Pearson and his *Almanack* are deserving of this tiny footnote in the annals of herpetological history.

ACKNOWLEDGMENTS

I wish to thank Aaron Bauer, Matthew Bettelheim and Frank Slavens for various courtesies and Breck Bartholomew and the Smithsonian Institution Libraries for providing obscure literature. Matthew Bettelheim and Scott Eipper generously reviewed and provided helpful feedback on an earlier draft of this manuscript.

REFERENCES

- Americanus. 1751. Rattle-snakes for felons. *The Pennsylvania Gazette*, 9 May 1751.
- Anonymous. 1782. *The American Rattlesnake Presenting Monsieur his Ally a Dish of Frogs*. J. Barrow, London.
- Anonymous. 1804. Extraordinary antidote to the bite of a rattle snake. *The Boston Weekly Magazine* 2(47):186.
- Anonymous. 1830. Cure for the bite of a snake. *The New England Farmer and Horticultural Register* 8(51):408.
- Anonymous. 1831. Abel Puffer's cure for the bite of a rattle snake. Pp. 10. In: *A New Collection of Genuine Receipts for the Preparation and Execution of Curious Arts*. Charles Gaylord, Boston.
- Anonymous. 1842. How to cure the bite of a rattlesnake. *New York Daily Tribune*, 5 August:2.
- Anonymous. 1845. Cure for the bite of a snake. *Southern Planter* 5(11):254.
- Anonymous. 1851. A cure for poison. *The New England Farmer* 3(14):220.
- Anonymous. 1855. How to cure a rattlesnake's bite. *The Knickerbocker* 45(5):511.
- Anonymous. 1860. Turpentine for snake bites. *Saturday Evening Post*, 11 August:8.
- Anonymous. 1895. Snake poison antidote: Strychnine neutralizes the venom of serpents. *Los Angeles Times*, 4 June:3.
- Anonymous. 1909. Jared Bean, librarian. *New York Sun*, 26 December:6.
- Anonymous. 1910a. An old-time almanac. *New York Times Review of Books*, 1 January:5.
- Anonymous. 1910b. Old Jared Bean and his almanac: Subject of "Sun" article lived in New Haven. *The Hartford Courant*, 7 January:7.
- Anonymous. 1910c. The librarian's series. *Publisher's Weekly*, 8 January 1910:25–26.
- Anonymous. 1911. Books and authors: The latest literary hoax. *New York Times Review of Books*, 17 September:549.
- Barton, B.S. 1793. An account of the most effectual means of preventing the deleterious consequences of the bite of the *Crotalus horridus*, or rattle-snake. *Transactions of the American Philosophical Society* 3:100–115.
- Bettelheim, M.P. 2021. Tortue-à-Porter: The faux fashion fad of turtle attire. *Bibliotheca Herpetologica* 15(14):141–149.
- Boothby, B. 1809. *Fables and Satires*. George Ramsay and Company, Edinburgh.
- Clarkson, M., and R.L. Leprechaun. 2021. *The Snakes of Ireland: The Comprehensive and Exhaustive Field Guide*. Edition Fictition, 128 p.
- Dunsany, E.J.M.D.P.B. 1915. The true history of the hare and the tortoise. Pp. 66–70. In: *Fifty-one Tales*. Mitchell Kennerley, New York.
- Foreman, R. and J.W. Maoney. 1857. Animal poisons or snake bite. Pp. 98–100. In: *The Cherokee Physician*. J.M. Edney, New York.
- Gilary, J. 1782. *The American Rattle Snake*. W. Humphrey, London.
- Huntoon, D.T.V. 1893. *History of the Town of Canton, Norfolk County, Massachusetts*. John Wilson and Son, Cambridge. 666 pp.
- Harris, J.C. 1855. Remarks on *Asclepias verticillata*, as a cure for the bites of venomous snakes and insects. *American Journal of Pharmacy* 37:452–453.
- Ingalls, W. 1842. Bite of a moccasin snake. *Boston Medical and Surgical Journal* 27:170.
- Klauber, L.M. 1956. Treatment and prevention of the bite. Pp. 860–972. In: *Rattlesnakes: Their Habits, Life Histories, and Influence on Mankind*. Vol. II. University of California Press, Berkeley.
- Masson, G.-A. 1921. Tortues. *Gazette du Bon Ton: Arts, Modes, et Frivolites* 6:153–156.
- McGregor, S. 1921. Letters from druggists. *Bulletin of Pharmacy* 35(2):80.
- Mease, J. 1834. Account of the modes adopted by Sampson and Cesar for the cure of bites of rattle snakes. *Southern Agriculturist and Register of Rural Affairs* 7(5):237–239.
- Murray, G. 1891. The hare and the tortoise. Pp. 331. In: *Verses and Versions*. W. Foster Brown & Co., Montreal.
- Palmer, T. 2004. The country doctor. Pp. 164–182. In: *Landscape with Reptile: Rattlesnakes in an Urban World*. University of Georgia Press, Athens.
- Pearson, E.L. 1907. The Librarian. *Boston Evening Transcript*, 24 June 1907.
- Pearson, E.L. 1909. *The Old Librarian's Almanack*. The Elm Tree Press, Woodstock.
- Pearson, E.L. 1911. Classification of the Old Librarian's Almanack. *Public Libraries* 16(9):379.
- Pearson, E.L. 1923. The literary hoax, II. Pp. 19–37. In: *Books in Black or Red*. Macmillan, New York.
- Peshtego, I. 1940. Advanced treatments of snake bite. *Ichtherps* 2:8–9.
- Puffer, A. 1771. A sure and certain cure for the bite of a rattlesnake, made public by Abel Puffer of Stoughton. In: N. Ames, *An Astronomical Diary; or Almanack, for the Year of our Lord Christ, 1771*. William M'Alpine, Boston.
- Rose, W. 1950. Advice to the inexperienced on catching and handling poisonous snakes, together with full instructions for keeping them in captivity. Pp. 311 in: *The Reptiles and Amphibians of Southern Africa*. Maskew Miller, Cape Town.
- Stokes, W.A. 1822. Cure for the bite of a snake. *The Medical Newspaper, or the Doctor and the Physician* 1(14):54.
- Wiegand, W.A. 1979. *The History of a Hoax: Edmund Lester Pearson, John Cotton Dana, and the Old Librarian's Almanack*. Beta Phi Mu, Pittsburgh.

We suggest the following format for citing this article:

Mendyk, R. W. 2022. A Sure and Certain Cure for the Bite of a Rattlesnake: 18th Century Folk Medicine and an Early Case of Herpetological Satire. *Bibliotheca Herpetologica* 16(5):43–47.



Eight weeks in Lobo Bay. The Natuurkundige Commissie on New Guinea in 1828 I. *Scincus* and *Centroplites* (Scincidae)

Hans J. Jacobs¹ and Glenn M. Shea²

¹Siekenweg 8, D-33178 Borcheln, Germany, hjjacobs@gmx.de

²Sydney School of Veterinary Science, B01, University of Sydney, NSW 2006, Australia;
Australian Museum Research Institute, The Australian Museum,

1 William St, Sydney, NSW 2010, Australia, glenn.shea@sydney.edu.au

Abstract. The various expeditions of the Natuurkundige Commissie to the Dutch East Indies were extremely successful on the scientific side. This applies both to the first group under Heinrich Kuhl, which explored Java from 1820–1825, especially its western part, and to the second, led until his death in 1827 by Heinrich Boie, then Heinrich Mackot until his death in 1832, and subsequently by Salomon Müller. The number of specimens collected by them—birds, fish, mammals, amphibians, reptiles, but also plants and minerals—is stupendous and is surpassed only by the quantity of handwritten notes and the precise drawings of the painter Pieter van Oort, which have not yet been systematically and scientifically evaluated. The entire undertaking was ill-fated and that most of the extremely young scientists and painters—with the exception of Salomon Müller—died, mostly of tropical diseases.

This second group was attached to a military operation whose mission it was to establish a base on the west coast of New Guinea. This operation was also fated to fail: so many died that the fort was abandoned after a few years. The scientists themselves stayed in New Guinea for just eight weeks: after a dramatic prelude in Dourga Strait and a short stay at the Oetanata River, they spent most of the time (5 July–29 August 1828) near the fort at Lobo Bay, which has been renamed Triton Bay.

In its first part, this article discusses the skinks collected, mostly assigned to the genus *Scincus* by Müller in notes that have been available online since 2020, but are hardly accessible due to the difficult handwriting.

After *Scincus typhlocephalus*, later renamed *S. muelleri* (= *Sphenomorphus muelleri* (Schlegel 1837)), *S. oxycephalus* (= *Lamprolepis smaragdina* (Lesson 1829)), *S. erythrolaimus* (= *Sphenomorphus meyeri* (Doria 1874)) and *S. biorchus* (= *Emoia caeruleocauda* (de Vis 1892)), all of which were rapidly assimilated into the contemporary scientific literature, three species not subsequently mentioned (*Scincus chalconotus* (= *Emoia kordoana* (Meyer 1874)), *S. rabdognathus* (= *Eugongylus rufescens* (Shaw 1802)), and *S. pleurorabdus* (= *Emoia jakati* (Kopstein 1926))) are presented each with their depictions by Pieter van Oort, then two other taxa (*S. maculosus* (= *Sphenomorphus simus* (Sauvage, 1879)) and *S. gracilis* (in part = *Ornithuroscincus noctua* (Lesson, 1829))) for which no pictures are available. The final species, *Centroplites nigricans* (= *Tribolonotus novaeguineae* (Schlegel 1834)) was not initially recognised as a skink. For all species—with the exception of *S. biorchus* allocated to Ambon—Müller's handwritten notes are transcribed and translated into English.

In addition to the herpetological and taxonomic aspects, great importance is directed to the scientific-historical framework in which the species are embedded. After almost 200 years, many aspects are alien to us at first glance and have to be painstakingly deduced from the context.

Key words: Natuurkundige Commissie, Dutch East Indies, New Guinea, Lobo, Hermann Schlegel, Salomon Müller, Pieter van Oort, Heinrich Boie, Heinrich Christian Macklot, *Scincus*, *Centroplites*.

INTRODUCTION

On 4 July 1828, Salomon Müller (1804–1864), Heinrich Christian Macklot (1799–1832), Gerrit van Raalten (1797–1829) and the draughtsman Pieter van Oort (1804–1834), after Heinrich Boie's (1794–1827) death the surviving members of the second group of the Natuurkundige Commissie (= commission of naturalists), coming from Ambon, reached New Guinea in the area of what was called Lobo Bay. A fifth scientist, Alexander Zippelius (1797–1828) had joined the group in June 1827 after having worked in Caspar Georg Karl Reinwardt's Botanical Garden at Buiten-

zorg since 1823. They were to stay merely eight weeks before they left again for Timor and Java at the end of August. Despite this short time the discoveries and scientific findings of the group are flabbergasting. They are presented here for the field of herpetology, beginning with skink species (referred at the time to the genera *Scincus* and *Centroplites*), in some detail.

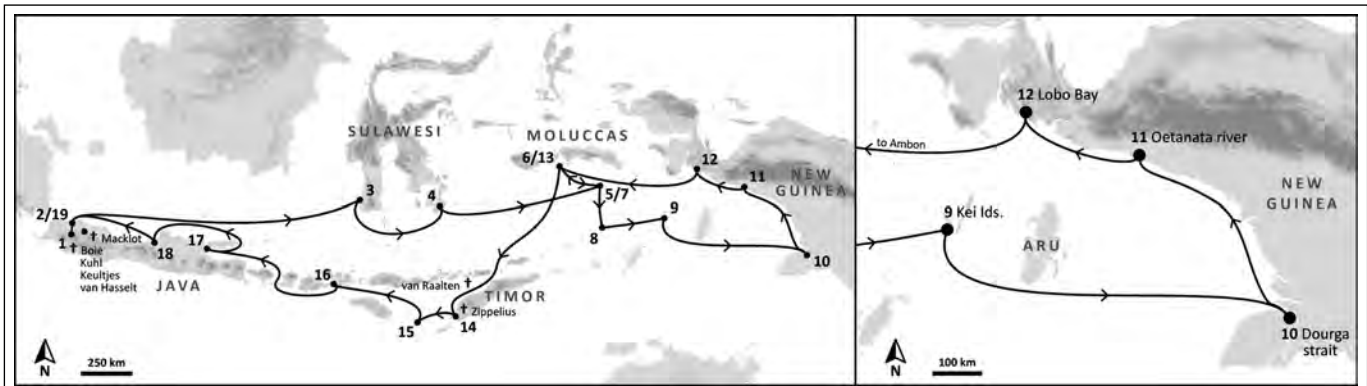


Fig. 1. The route of the Natuurkundige Commissie in East Indie. The small map gives an enlargement of the regions on New Guinea the members of the Commissie explored.

The large map: from Buitenzorg (1; today: Bogor, 6 June 1826–23 Jan. 1828) via Batavia (2; today: Jakarta), Makassar (3, 6 March 1828), Boeton (4, Buton) and Banda Neira (5) to Ambon (6, 29 March–21 April 1828) in the Moluccas.

The next stage led them via Banda Neira (7, 25–29 April) and the small Serua island (8) to the Kei islands (9, 7 May). The ships spent quite some time between the Aru islands and New Guinea (29 April–21 May), which they reached near the Dourga Strait (10, later: Prinses Marianestraat; today: Muli Strait, 21–27 May) that separates Frederik Hendrik Island (today: Yos Sudarso) from the main island. According to Modera's map (Mörzer Bruyns 2018: 340) they crisscrossed into the strait for some miles, until they understood that it was not a freshwater river, and then turned back and continued northwestward close to the coast to the Oetanata River (11, 3 June) and finally to Lobo (Triton) Bay (12, 5 July–29 Aug.).

After barely eight weeks, the onward journey travelled via Ambon (13, 5 Sept.–7 Oct.) to Koepang (14, today: Kupang) on Timor (14 Oct.–10 Nov.) where the naturalists left the ships. On 10 Nov. 1828 they began their journey back to Batavia on Java on board the brig *Merkus* via Savo Island (15, today: Sawu, 12 Nov.) and Sumbawa (16, 15 Nov.). After stops in Surabaya (17, 25 Nov.) and Semarang (18, 2 Dec.) they reached Batavia (19) on 11 Dec. 1829.

The crosses signify the deaths of Kuhl (†14 Sept. 1821), Keultjes (†16 Sept. 1821), van Hasselt (†8 Sept. 1823) and Boie (†4 Sept. 1827) in Buitenzorg, Zippelius (†31 Dec. 1828) on Timor, van Raalten (†17 Apr. 1829) at sea near Timor, and Macklot (†12 May 1832) in Purwakarta near Jakarta. Pieter van Oort died (†2 Sept. 1834) in Padang on Sumatra.

THE NATUURKUNDIGE COMMISSIE IN THE DUTCH EAST-INDIES

The four naturalists did not arrive alone on New Guinea, but were part of a troop of soldiers sent to the island on board the corvette *Triton* and the schooner *Iris*. Their task was to establish a station on the west coast of New Guinea in order to protect and support trade routes with the Moluccas. It had been—incorrectly—assumed that the British had an imminent interest in this region and had founded an establishment on the south coast already.

Onboard the two warships, 170 men left Ambon on 21 April 1828 and reached the opening of the Dourga river on New Guinea exactly one month later on 21 May (Mörzer Bruyns 2018:38 and 151); unfortunately, the river, as it had been identified by Lieutenant Dirk Kolff of the Dutch warship *Dourga* during an earlier survey in 1826, turned out to be a strait, since it carried pure saltwater whereas Kolff had assumed it to be a freshwater river (Earl 1839:7–8). The first encounter with the natives began promisingly and somewhat conventionally: presents in the form of cloth, mirrors and glass corals (Müller 1840–1841:37) were exchanged against some “lansen, bogen en pijlen, alsmede onderscheidene versierselen” (p. 38; lances, bows and arrows, as well as various ornaments). A misinterpretation while embarking the sloop escalated the situation: the natives shot arrows at three of the sailors who in turn shot at the Papuans. It cannot be a surprise that Müller came up with the verdict that of all the Pap-

uans these people were of “de meeste dierlijke woestheid” (p. 35; the most animal ferocity). This report is confirmed by Modera's account of the event, which adds that “drie inlanders uit het water op den wal had gedragen, zoodat die waarschijnlijk dood geschoten” (Mörzer Bruyns 2018:155–156, three natives had been carried out of the water onto the shore, so that they were probably shot dead).

Müller proved to be extremely interested in ethnological studies, probably—along with the artist Pieter van Oort—the only one in the scientific team with such interests. Müller compared meticulously the main dimensions of skulls from different ethnic groups (West coast and Northeast coast of New Guinea) to those from New South Wales that had been previously collected by Joseph Banks (Müller 1840–1841:65). Today we would call this measuring from a moral perspective presumptuous, but in the world of these imperialistic times—without wanting to justify it—other races were viewed not only as objects of study but also as exhibits.

The area of the Dourga Strait (today: Prinses Marianestraat; Indonesian: Selat Muli), about 250 km west of the modern border between West New Guinea and Papua New Guinea (Fig. 1), was inhabited by heathenish Papuans, while further west—in the Lobo region—they were mostly converted Muslims.

There has been a lot of speculation as to the primary intent of the entire expedition. Of course, the main reason consisted of protecting colonial interests. This ranged from trade—especially spices—over strategic aspects to the discovery of

new natural resources. So, for instance, Macklot searched for copper and silver deposits on Timor (Mörzer Bruyn 2018). As already indicated, it was also their task, led by Macklot, the leader of the naturalist team, to analyse and decide upon soil quality—a factor in deciding on the location of the Fort du Bus settlement (Macklot 1830).

It is left open to discussion whether the presence of five naturalists on board—Heinrich Christian Macklot (zoologist), Gerrit van Raalten (taxidermist), Pieter van Oort (artist), Salomon Müller (zoologist), and Alexander Zippelius—sufficed as a cover-up for a military enterprise (Rouschop 2020) or whether this must be considered rather as a joint undertaking certainly with military and strategic priorities. The main task of the Commissie, however, was to map unknown territories and to collect not only specimens of species alone, but as much knowledge as possible.

Very little information is available about Zippelius, who was assigned to the group at the end of June 1827 as botanist by order of “Zijner Excellentie de kommissaris-generaal”, Leonard Pierre Joseph burggraaf du Bus de Gisignies (1780–1849) (Weber and van Zanen 2021a:69, His Excellency the Commissioner General). From 1823 he had worked as assistant curator in the botanical gardens in Buitenzorg. In van Oort’s diaries his name crops up just three times, but obviously there is a gap between January 1828 and November 1829, which might explain that not even his death on New Year’s Eve 1828 is mentioned.

It is no wonder that during the first dangerous encounters at Dourga Strait only some bird species, such as *Podargus giganteus* Müll. n. sp. were mentioned, along with one amphibian species: a tree frog reported as *Hyla sinuosa* Müll. (NNM001001113_007; we use the signatures in referring to Gassó et al. 2020), drawn by Gerrit van Raalten, one of his few paintings in the second Commissie-group. The only reptile species was *Dendrophis capistratus* Müll. (today: *Dendrelaphis calligastra* (Günther 1867) or possibly *D. lorentzii* (Lidth de Jeude 1911)), found near the Oetanta river, with which we will deal later.

Probably due to the experiences with the natives the expedition did not linger long in the Dourga Strait. Müller claims that he went ashore and shot some cockatoos, (*Psittacus galeritus* (Latham 1790); today *Cacatua galerita*; Müller 1840–1841:36) and reported later, when on board again, that the soil was not suitable to build a fort. Apart from this he described another *Psittacus*-species the name of which unfortunately has subsequently again been crossed out and is therefore unreadable with a large distribution area including “Flüsse Dourga & Utanata, Eýland: Aiduma & Lobo” (rivers Dourga & Utanata, island: Aiduma & Lobo).

In his handwritten notes, however, he does not refer to *Psittacus galeritus* at all but to another species from the river “Utanata Juný” (NNM001001099_018; June) as *Psittacus cyan...* Müll. [binomen unreadable, crossed out] which was later corrected by some other hand to “placentis” (today: *Hypocharmosyna placentis* (Temminck 1835)). This Red-

flanked Lorikeet, though, certainly cannot be confused with the white cockatoos he saw in large flocks also at the Oetanata River (Müller 1840–1841:36). It must therefore surprise that Müller did not mention *Psittacus galeritus* of which three specimen pop up in the shipment-lists (NNM001001422_001 - 2 specimens, NNM001001435_001 - 1 specimen) but not in van Oort’s list of drawings. Undoubtedly, Müller also found this cockatoo later on near the Oetanta river and in the Lobo region as well, since it definitely was not rare.

Most probably, it usually took the help of the natives to catch animals. This help, of course, was not available under these circumstances.

The relationship with the natives proved to be quite diverse. It is evident that the natives near Lobo Bay were not entirely happy with the establishment of a fort. There were quite a few armed skirmishes—as already in the first encounter on the shores of the Dourga Strait—in which the naturalists had to participate as well. Such situations generate a certain momentum of their own; it strikes us as quite plausible that men partaking in such an expedition will take up arms in cases of armed conflicts.

After leaving the Dourga Strait the ships anchored in the mouth of the Oetanata River on 3 June (Mees 1994; Fig. 1, Lat. 4° 32’ S., Long. 136° 10’ E.). Müller describes the situation with the natives of the Oetanata River—in contrast to the Dourga Strait—as friendly: “meer dan eene week lang, eene volkomen vriendschappelijke verkeerig hebben gehad” (Müller 1857:66, have had an entirely friendly relationship for more than a week).

Obviously, there were decisive regional differences in the relationships with the various ethnic groups. Of course, this may already depend on whether the individual tribes knew other ethnic groups through trade and were thus accustomed to a certain exchange. As we know, there are many quite different languages in New Guinea. The interpreters on the ships evidently did not understand the vernacular of the people near the Dourga Strait. However, the Papuans in the Lobo region apparently had some trade exchange with the Moluccas. Nevertheless, the Triton and Iris were probably the first ships with Europeans they ever saw. The contact in the beginning was quite friendly and peaceful since the natives sold wood and atap, an indigenous palm, to the Europeans for building their fort—allegedly well above the market price. Apart from that Arnoldus Johannes Van Delden, head of the Dutch envoy and later in charge of the Fort du Bus, “had promised, trade and prosperity, and protection from pirates that raided the area regularly” (Mörzer Bruyns, pers. comm., 14 Nov. 2021). Since none of these promises were kept, the friendly atmosphere obviously came to an end when the ships left New Guinea.

Macklot’s death in Java at the end of the expedition’s work probably has to be seen in this light: he died on 12 May 1832 in a skirmish with Chinese workers when he was stabbed with a lance. The day before, van Oort reports in his diary that Macklot’s notes and documents were burnt in an uproar in Purwakarta on Java (Weber and van Zanen 2021a:249).

This is certainly the main reason why we know less about Macklot's discoveries than about Müller's. Nevertheless, it is surprising that none of the species which appear on the transport lists carry Macklot's acronym as an indication that he intended to describe it, as he was Müller's senior.

Needless to say, everybody had to lend a hand in establishing the fort and protecting it with a double ring of palisades (Fig. 2) the outer ring was about 1.20 m high, with an inclination of 45 degrees (Mörzer Bruyns 2018:220) and enclosed a square of "120 Amsterdamsche voeten" side length (Mörzer Bruyns 2018:220; 28.56 m); the inner ring measured "90 voeten" (21.42 m), so that the entire fort encompassed just a bit more than 450 square metres. The armament consisted of four two-pound cannons, one at each corner, and one three- and one six-pounder on the two flanks.

Despite having to contribute to the building activities, the scientists succeeded in collecting an astounding number of specimens and in describing quite a few species, some of which will be presented below.

The entire military enterprise ended in disaster: of the 170 men who landed in April 1828, 110 died in the next few years, so that finally the fort was abandoned in 1835 after barely seven years.

The situation of the five naturalists in Merkusoor (as the village was called in honour of Pieter Merkus (1787–1844), Governor of the Moluccas) must have been incompatible with their previous experience in Buitenzorg. Although in the tropical jungle somewhere on a foreign island, Buitenzorg still was a veritable town. There, the house that the naturalists were allocated in the Botanical Garden was right in the vicinity of the palace of the governor. In addition to that they had a lot of personnel at their disposal. We gather from van Oort's diaries that even for smaller trips around Buitenzorg they were accompanied by "18 inlandsche bedienden, als 5 huisjongens, 6 staljongens, 1 kok, 1 dispensier, 2 jagers, 2 insektenvangers, een preparateur" (Weber and van Zanen 2021a:59; 18 native servants, as 5 house boys, 6 stable boys, 1 cook, 1 dispenser, 2 hunters, 2 insect catchers, a taxidermist). On a trip to Tjiboeraioet, a little village not more than 30 km south of Buitenzorg, their "goederen wierden gedragen door hondertvijftig mannen" (Weber and van Zanen 2021a:110; our goods were carried by one hundred and fifty men). Ventures of this kind may not always correspond to the often romanticised expectation of adventurous expeditions. But here, in the direct centre of Dutch imperial interests, we see only one side, which cannot be compared with the situation in New Guinea. Moreover, it should not be forgotten that the potential for danger was also very high on Java, which is also reflected in the number of deaths in Buitenzorg itself.

Unfortunately, there are only very few details of the medical care for the deceased members of the commissie available. One of these few is Macklot's letter to Temminck of 7 Sept. 1827, three days after Boie's death, in which he reports that Boie had "ein heftiges hitziges Fieber; sein Arzt und Freund Dr. Kollmann, ein erfahrener, tüchtiger Mann, behan-



Fig. 2. Merkusoor (Modera 1830), as the village was called. The garrison itself was called Fort du Bus. It remains questionable how realistic this drawing is intended to be: on one hand the palisade does not really appear unsurmountable, and the houses on the other do not seem adequate to shelter 170 people, although, of course, not the entire crew of the ships would stay permanently in the fort.

delte ihn mit aller Vorsicht (...) die kräftigsten Arzneimitteln blieben ohne die mindeste Wirkung" (NNM001001295_001, a violent hot fever; his doctor and friend Dr. Kollmann, an experienced, competent man, treated him with all caution (...) the most powerful medicines remained without the slightest effect). Georg Joseph August Kollmann (1797–1839), a German doctor in the service of the Royal Dutch East Indies Army, was not only personal physician to the governors-general, but a renowned botanist and collector of ethnic art as well. During a home leave in 1836 he offered his collection of over 4,200 genera of dried plants to the Royal Herbarium in Leiden (van Steenis-Kruseman 1950). It has to be kept in mind that antibiotics and antimalarials, for instance, were not available, being only developed in the end of the century. At least in Buitenzorg the members of the commissie were well cared for medically. The vicinity of the botanical garden as well as the residence of the governor, who certainly favoured the situation in the hills of Buitenzorg with its much healthier climate to the capital Batavia (today's Jakarta), was advantageous, despite not only Kuhl, Keultjes and van Hasselt of the first Commissie team dying there, but also Heinrich Boie, the initial leader of the second Commissie group. Boie was buried right next to Kuhl and van Hasselt (see 5 Sept. 1827, van Oort's diary; Weber and van Zanen 2021a).

The succession to Boie raises some questions, not only concerning the dynamics within the group. According to passages in van Oort's diaries and several letters to Temminck it was—allegedly—Macklot who suggested the French naturalist Pierre-Médard Diard (1794–1863) to the commissioner as a replacement. Already two days after Boie's death van Oort states: "zei de heer Macklot ons dat de heer Diard in plaats van Boie zou komen". Van Oort, who is otherwise so reserved in his diaries, raises some doubts: "Of deze die be-

kwaamheid, welke onze goede Boie bezat, wel in die mate bezit?" (6 Sept. 1827, Weber and van Zanen, 2021a:72; Mr. Macklot told us that Mr. Diard would come in place of Boie. Does he possess the ability which our good Boie possessed?).

In a note at the margin of the page he sounds somewhat satirical when he points out that "Deze man moet volgens het zeggen van alle menschen hier zeer knap zijn. Ik geloof echter zulks niet" (This man is said by all the people here to be very handsome. However, I do not believe so). The final verdict sounds quite definitive: "Zijne handelingen zijn te winderig. Zijne pogingen om zich in te dringen en deze post te bekomen vallen te veel in't oog" (His actions are too windy. His attempts to force his way in and get the post are too conspicuous) and raises questions about the chemistry within the group.

Maybe even more conspicuous is a letter that counteracted plans concerning Diard's (5 Nov. 1827, Weber and van Zanen, 2021a:73) mission to Borneo. It is obviously this that prevented Diard's participation in the journey to the Moluccas and New Guinea. How Boie's succession was officially managed must be left unanswered, after Müller had brought himself into play when he declared that "Niemand seine Gedanken und Meinungen besser kennt als ich" (NNM001001339_003, 9 Sept. 1827, letter to Temminck, Nobody knows his thoughts and opinions better than I do) and that he would proceed with the work started by Boie's "wenn mir solches die Umstände nicht untersagen", which is most certainly an allusion to the possible succession plan (unless the circumstances prevent me from doing so).

The contrast of the rather organized situation in Buitenzorg with New Guinea must have been tremendous. Seen off with a big ball in Ambon given by Governor Merkus, the situation on New Guinea was very different. It turned out not to be easy to find a proper place for a settlement in Lobo Bay, as the future Triton Bay was called in the vernacular, and respectively the decision for Merkusoord turned out to have been dramatically wrong. The attacks of the native people later on, but most of all the tropical diseases, took their toll.

Unfortunately we do not know too much about everyday life in Fort du Bus (as the garrison was called in honour of the Governor General of the Dutch East Indies, Leonard du Bus de Gisignies), due to a gap in the diaries of Pieter van Oort and a lack of letters and other documents. One must assume that they were lost somewhere along the line.

As far as we have been able to determine, instruments (see Jacobs 2021:16, 22–24), personal belongings and books were not preserved after the return to Europe in 1837 of Müller, the only survivor of the first two groups. Alone his ornithological collection is said to have included 6500 bird skins, 700 skeletons, 150 nests and 400 eggs (Gebhardt 1964) – besides mammals, fish, reptiles, plants and minerals. It is not clear, though, how this takes into regard the previous shipments sent to the Netherlands from Buitenzorg before Müller's return. According to information from Naturalis, there are no longer any records of technological equipment. And this seems to be the case for the books the members of the group

had taken with them as well. Again, we do not know all that much about the fundamental scientific works the naturalists had at their disposal to accomplish their task. And we do not have a clue about any cooperation the Commissie's members had with the well-established botanical garden at Buitenzorg, whose first director was Kaspar Georg Karl Reinwardt (1773–1854) from Leiden.

However, thanks to an inventory of Boie's belongings, which Macklot drew up after his death, we learn that Boie alone owned more than 240 generally scientific titles, partly in several volumes (NNM001001400). This at least seems to suggest that the scientists had an adequate library at their disposal. Most definitely, though, they had made copies of certain reference works like, for instance, Boie's manuscript *Érpetologie de Java* and similar books. Furthermore they took over all the documents of their predecessors Kuhl and van Hasselt, as Boie's letter to Wagler documents: "Hr. v. Raalten (...) hat mich in Besitz aller Copien von Zeichnungen und Mspt. jener unglücklichen jungen Männer gesetzt" (Boie 1826:724, Mr van Raalten (...) has put me in possession of all the copies of drawings and manuscripts of those unfortunate young men). It is all the more surprising that nowhere in Müller's notes, for example, are there direct references to these works or to specific details in Kuhl's manuscripts.

The expeditions of the *Natuurkundige Commissie* as a whole did not take place under a lucky star; the death toll was immense. Boie's death marked a turning point in the career of Salomon Müller. Already the circumstances of how he joined the group and the very beginnings of his scientific career sound highly romantic. As the son of an innkeeper in Heidelberg, it is said that he listened to a discussion between Boie and Macklot in the inn of his father so intently that the two became aware of him. They convinced Coenraad Jacob Temminck (1778–1858), director of the *Rijksmuseum van Natuurlijke Historie* in Leiden, today's Naturalis, to accept him as a taxidermist for the expedition to East India.

Müller had never been officially enrolled in a university; only after his return in December 1837 did he receive the doctorate of the Philosophical Faculty in Heidelberg in absentia. This makes all the more stunning his achievements, especially when he grew into Boie's role as zoologist after his sudden death. There are hardly any notes from him before this promotion, but afterwards we find hundreds of pages in the Naturalis online-archive covering a wide range from mammals and birds over reptiles and amphibians to insects and regional and cultural studies. Only after Macklot's death in 1832 did Müller take over in full responsibility; Macklot had seniority over him until then. But this had no resonance in the scientific notes we encountered in the archive of Naturalis. The fact that in the strict sense of the word Müller was not a scientist was also reflected in his salary: Van Oort reports that Boie and Macklot as scientific personnel received contractually 500 f. [gulden, = florins] monthly, whereas Müller and he himself got only 200 f., plus a *scheepstractement* of 106 f. and 75 f. respectively, and a gratification of 1,200 f. and

900 f. respectively (Weber and van Zanen 2021a). It must be assumed that Müller's salary was raised with his promotion.

Of course, these absolute figures say little. To be made meaningful, they have to be put in relation to purchasing power. According to the "Internationaal Instituut voor Sociale Geschiedenis" in Amsterdam (International Institute of Social History) in 1828 one hundred guilders had the same purchasing power as 2.560 fl. (= 1.160 €) today. In this context, however, it should be noted that overseas guilders were worth about 25% less. This means that Müller's initial salary amounted to roughly 4.100 fl. (= 930 €). Of course the question remains of what could be bought for this on Ambon, New Guinea or on Sumatra. In Buitenzorg itself, as the centre of administration, the situation was presumably more comparable to that in Europe.

"Onze oogst van Nieuw-Guinea's west-kust (bestaat) in 26 soorten, waarvan 15 tot de orde der hagedisachtigen, 5 tot die der slangen, 1 tot de schildpadachtigen en de overige 5 tot de familie der kikvorschachtigen behooren" (Müller 1857:32, "Our harvest from New Guinea's west coast (comprises) 26 species, of which 15 belong to the lizard order, 5 to that of snakes, 1 to the tortoises, and the remaining 5 to the frog family."), most of whom were completely "onbekend" (=unknown).

We do not know which list Müller is referring to, nor do we see it as our task to verify such figures. Undoubtedly, however, the eight weeks that the commissioners spent in Lobo Bay brought a rich "harvest", not only in terms of captured, scientifically described and drawn specimens, but also in terms of knowledge in the broadest, interdisciplinary sense. This "forensic historical herpetology" (O'Shea and Kaiser 2018:190) includes editorial and text analytical sciences as well as an historical aspect to illuminate intricate problems of early taxonomy.

Of five species detected on Ambon and described by Müller in his manuscripts (*Scincus cyanurus*, *Scincus biorchus* Müll., *Lycodon nuchalis* Müll., *Dendrophis rhodopleuraa* [sic], *Python amethystinus*) plus another species for which we only have drawings by van Oort (*S. Trisfiamus*), we shall come across a few again in analysing the species from New Guinea. We shall primarily follow the order as we find it today in the online-archive, which is obviously not Müller's original order, but was arranged like this later on, and thus begin with the genus *Scincus*.

SALOMON MÜLLER'S HANDWRITTEN NOTES

The general situation concerning primary literature from the time at Triton Bay is easier to assess since the "Natuurkundige Commissie Archives Online" (<https://dh.brill.com/nco/>) were established, containing published material, images, and handwritten documents. In particular, the last section with nearly 14,000 pages of "diary entries, field notes, expedition reports, transport lists, correspondence and other forms of information" constitutes an unbelievable treasure of mostly

unknown information. It must be added, though, that this material is hardly accessible to the untrained eye since it is not only written by hand by various committee members under often very difficult circumstances, but is in a number of languages (Dutch, German, French, Latin) as well, and requires careful transcription and editing.

Müller's notes alone amount to more than 3,000 pages, which is all the more astonishing when one considers that he apparently only began to write them after Boie's death in September 1827. At Macklot's side he quickly outgrew his area of responsibility and took on a leadership role. It is quite remarkable how quickly the former taxidermist fulfilled his new role as a natural scientist. This impression, of course, is all the more compelling since Macklot's documents have disappeared and so Müller's scientific legacy is practically the only one of this period on New Guinea. There is no way to say precisely what was lost in the fire in Purwakarta. But not only Macklot's scientific works created in New Guinea were lost; this must have been the case as well for the relevant part of van Oort's diaries and for correspondence from most members of the Commissie. This is unfortunate in the extreme, because we have no insight into the daily routine.

The content of some of Müller's notes flowed into later publications, especially into various parts of the "Verhandelingen" (1839–1847) edited by Coenraad Jacob Temminck, the first director of the Rijksmuseum van Natuurlijke Historie, today's Naturalis in Leiden. Others also freely made use of the notes of various members of the Commissie, and not only the notes but also the collected specimens, some of which were exchanged with other institutions, and used by scientists at those institutions.

It is noticeable, studying Müller's notes, how many species include the addendum "Müll." behind their name. This on the one hand indicates that he intended to publish a first description of the species he tentatively described, likely soon after having obtained the specimens. In some cases it suggests, though, that he was not aware of descriptions already published by others. The question of joint consultation and reassurance by means of scientific literature brought along cannot be definitively settled. We know that—at least in Buitenzorg—a considerable number of books were available. Nevertheless there are cases where Müller and the other scientists did not seem to be aware of earlier descriptions and obviously did not have access to a full library for all classes of animals. That again raises questions of what the naturalists carried with them on their journeys and what had to stay in Buitenzorg. However, it is important to remember that Heinrich Boie, prior to embarking on the expedition in 1825, had spent five years employed at Leiden, studying the specimens obtained by Reinwardt and the first Commissie, and had compiled from this a manuscript, the *Erpétologie de Java* (Adler 1989), so that at least Boie had some prior knowledge of the reptile and amphibian fauna to be expected.

Unfortunately, the notes no longer exist in their original order. The notebooks, which were very different in size and

format, were obviously cut up and rearranged by genus. The names of the diverse isles, which Müller mentions generally in the right-hand corner of each description, suggest where and when, at least approximately, a certain specimen was caught and described. In the order we have at our disposal today, this order is mixed up: the locality “New Guinea” does not exist in its original chronological order any more, but is interspersed among descriptions of species from Java, Samao (= Semau), Sumatra, Timor, Ambon, etc. In case of Java, the correlation is not entirely unequivocal since the group researched fauna and flora of that island twice: between June 1826 and March 1828, and a second time after their return from New Guinea between November 1829 and May 1833. And this is true also for Ambon which the group explored twice: between 29 March and 21 April and again between 5 September and 7 October 1828.

Apart from birds, mammals, fishes and amphibians Müller described nearly two dozen reptile species of the Lobo region, the majority of which were completely unknown at the time of collection. One “bundel aantekeningen” (NNM001001113, bundle of notes) carries the title “Amphibia”, a term which at that time included reptiles as well, and it is here that the skinks collected are gathered, mostly under the genus name *Scincus*.

After an initial section dealing with the “Batrachier”, the editor, who decided upon the order of the documents in the online-archive of the Naturalis-Museum (Leiden; <https://dh.brill.com/nco/>), collected together all of Müller’s notes on the genus *Scincus* (NNM001001113_022–051).

Hermann Schlegel, Boie’s successor at Leiden who, of course, had the first opportunity to formally describe the Commissie’s reptile material, claimed a great confusion in the taxonomy of the genus not only due to the close relatedness of the species. Above all the natural scientists were to blame, “die ohne vergleichend zu Werke zu gehen, fortwährend neue Arten beschreiben” (Schlegel 1837:13; who without any comparative analysis continually describe new species). To shed a little light on this “confusion” we shall first tackle the genus *Scincus*, beginning appropriately with the first species described by Müller, *Scincus typhlocephalus*, which was later named by Schlegel in Müller’s honour *Scincus muelleri* (Fig. 3a).

At the time the generic name *Scincus* was applied to almost all skinks. Today we know more than 1,700 species of skinks worldwide, but at the time of the Commissie’s departure, *Scincus* had only just been divided by Gray (1825) into five genera, and the most recent treatments of species in *Scincus* were by Daudin (1801) and Cuvier (1817), who had recognised just a handful of species, and Merrem (1820), who recognised only 24 species, few from the region visited by the Commissie.

Schlegel recognised only one species of *Scincus* collected by the Commissie as a new species: *Scincus muelleri*. He did describe a second species, which he—as well as Salomon Müller—did not recognise as a skink at all: *Zonurus novae-*

guineae (now *Tribolonotus novaeguineae*), which Müller also discovered at Lobo Bay and called a “sonderbare[s] Thier” (NNM001001113_129, a weird animal), assigning to it the name *Centroplites nigricans* (see below).

SCINCUS TYPHLOCEPHALUS MÜLL. (= *SPHENOMORPHUS MUELLERI* (SCHLEGEL 1837))

Schlegel highlights in his description to the “schlanke Form, der kräftige und ziemlich lange Schwanz, die zu der Grösse des Thieres ungemein kleinen Füsse, welche mit sehr kurzen Zehen versehen sind, der kleine conisch zugespitzte Kopf, die eigenthümliche Farbverteilung” (Schlegel 1837:14; slender shape, the strong and rather long tail, the feet extremely small for the size of the animal, which are provided with very short toes, the small, conically pointed head, the peculiar distribution of colour). He ends with the remark the picture rendered a more detailed description superfluous.

We learn from Müller’s manuscript that he was able to catch one specimen only, which pops up in an transport list (NNM001001423) and as well as in a transport-“Catalogus” of specimens shipped in “Februärj 1831” (NNM001001436), both written by Müller himself. The first list unfortunately is undated but carries remarks in lead pencil—obviously by Schlegel—mostly referring to additional distribution areas. In case of the *Scincus* discussed here we find “*mulleri*” added. Müller himself pointed out in a nota bene that all reptiles on the list were “aus der Bay Lobo bis auf *Dendrophis capistratus* welche von der Rivier Utanata ist” (from the Lobo Bay except for *Dendrophis capistratus* which is from the Utanata River).

Sphenomorphus muelleri is largely distributed in the lowlands of New Guinea, extending from near Lae on the north coast, around the eastern end, along the south coast to the Bomberoi and Vogelkop Peninsulas and the islands in Geelvink Bay, as well as Ceram, and the Aru and Kei Islands. Besides many localities in Papua New Guinea, both north and south of the cordillera, De Rooij (1915) lists the following localities in Indonesian New Guinea: Fak Fak, Lobo, Dorei, Andai, Mansinam, Mafoor, Haas, Amberbaki, Jobi, near Lorentz River, and Mimika River. The taxonomy of this species is complex, and multiple species are involved (Shea, pers. obs.). The type locality, Triton/Lobo Bay, is only 200 km from Fakfak, the nearest locality on the Bomberai Peninsula, and is morphologically similar to that population. However, few records are available from between Triton Bay and the Papua New Guinea border along the south coast.

The holotype of this species is deposited in the Naturalis collection in Leiden (RMNH 3835) as *Lygosoma muelleri*. The register entry for No. 3835 reads “*Lygosoma* ... [unreadable] *muelleri* n. sp. N. Guinea Müller en M.”. The register in use today is a rather bad copy of the original. The holotype also bears a tag with an old accession number (322). An old register, “Lyst van Typen”, a forerunner of the modern catalogue, lists under the number 322 “*Lygosoma Mülleri*”. The label on the jar of the holotype has the same information

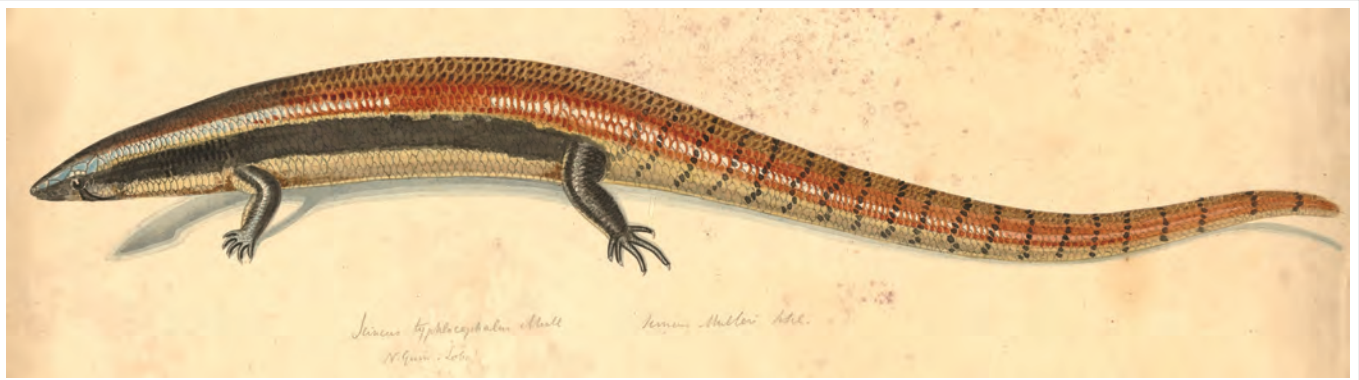


Fig. 3a. The caption reads: *Scincus typhlocephalus* Müll [crossed out] — *Scincus mulleri* Schl.; N. Guin. “Lobo” (NNM001000613). The online-archive states the author is unknown, but we learn from Schlegel that Pieter van Oort drew it “nach dem Leben” (Schlegel 1837: 15; true to life); it is also listed in van Oort’s “Lijst der teekeningen” (NNM001001115_002; List of drawings). Schlegel used the same drawing (though reversed from van Oort’s original), accompanied by four additional details from a later artist (Fig. 3b) in the atlas-volume of his “Abbildungen” which was published in “decades”, as the sequentially issues parts of books were called, each of which contained ten plates with the corresponding texts, between 1837 and 1844 (Jacobs and Koch 2021:70–72). This picture was published in the first decade (Tab. 3, 1837), and was produced reversed, since the engraver generally maintained the orientation of the original, so that the image printed from that limestone plate consequently was reversed. Schlegel points out that a lot of the beautiful basic colouration was lost after death and it changed to a rather dull brown yellow. Fitzinger (1842) used the same picture as well (maintaining the orientation from Schlegel’s plate) and just added a slight suggestion of a landscape.



Fig. 3b. For the sake of comparison Schlegel (1837) added four figures to van Oort’s drawing: head from above, in profile, and from below; plus the cloacal region. At the original publication size the fine structure of the scalation is hardly discernible. However, magnification proves that Müller’s information on the scalation has been adopted meticulously. Schlegel doubtlessly had Müller’s notes in front of him; in addition to the diverse scales Müller mentioned in his notes Schlegel and his artist introduced a lot of details in the drawings which—together with the underside of the head and the anal region—Müller did not describe, proves that they used the specimen itself as well. Schlegel himself (1837:14) points out that these drawings were produced in Leiden after Müller’s return, but he does not convey the name of the artist. Drawing 4. “head from below” and 5. “anal region” have neither corresponding passages in Müller’s notes nor in Schlegel’s published first description.

(Dondorp, pers. comm., 24 Nov. 2021). Undoubtedly, this is an early registration number that was assigned in Leiden, rather than a number assigned in the field by Müller. Whether the scientists identified the reptiles on site in a similar way cannot be said with certainty. For the time being, it must remain open how they marked freshly caught specimens. If they had already introduced a consecutive registration immediately after receiving the skinks, they would undoubtedly have used this numbering in the shipments-lists as well.

In the handwritten catalogue in use before the modern digital catalogue, “*Scincus muelleri* Schlegel Holotype” was added subsequently over the line entry.

That we are dealing with the same specimen is evident when we compare the measurements given by Müller (see below) and of the holotype in millimetres (Fig. 4; Naturalis, Leiden, RMNH 3835): snout-vent length 167 mm (Müller: 160 mm), head length 23.6 mm (Müller: 24.1 mm), head width 17.25 mm (Müller: 17.1 mm). The measurements are

reasonably close. The difference in SVL might be caused by Müller taking the measurement along the ventral surface of the skink after preservation with the back slightly arched (Figs. 3a and 4) while we measured along the ventral surface with the specimen flattened against a steel ruler, reducing the arched back, which will give a slightly longer ventral body length. Since the tail is missing a total length cannot be determined.

Fitzinger (1842), for whom *Scincus mulleri* represented the type species of his new genus *Sphenomorphus*, at the time added two criteria to the ones mentioned above: the lack of palatine teeth and the naris opening in the middle of a single scale (Schmidtler 2013:21). The most prominent feature, though, remains the shape of the head which earned the species the German trivial name “Müller’scher Keilskink” (Müller’s wedge skink, see Figs. 3a–b) whereas Müller’s epitheton refers to the meagre eyesight: “typhlo” meaning blind in Greek to which Müller again refers explicitly in his de-



Fig. 4. Holotype of *Sphenomorphus mülleri* (= *Scincus muelleri*) (Photo: Glenn Shea). The head indeed is quite “typhlops-like, almost pointed”, as Müller described it.

scription (see below): the head being shaped “typhlopsartig” (= typhlops-like). Typhlopidae are vermicular burrowing snakes with very reduced eyes and are found in all tropical and subtropical regions of the earth, with one, *Xerotyphlops*

vermicularis, even in Europe. Head scalation plays a decisive part in the differentiating of skink species. Müller’s manuscript descriptions use an antiquated nomenclature for the head shields of skinks. It is likely that Müller was fol-

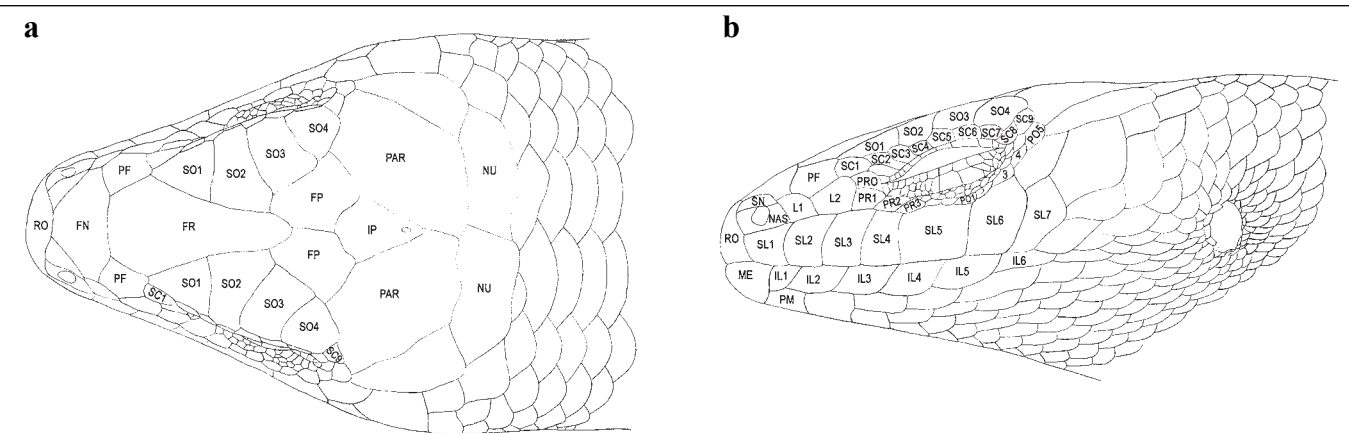


Fig. 5 a–b. Schematic representation of the head scalation of *Eugongylus rufescens* (the same species illustrated by van Oort under the name *Scincus rabdognathus* (van Oort; Fig. 13). Head scalation in Müller’s notation and in modern scientific terminology (Drawing: Glenn Shea).

a. top view:

FN = frontonasal – *Schnauzenschild*
 FP = frontoparietals – *hintere Wirbelschilder*
 FR = frontal – *vorderstes Wirbelschild*
 PAR = parietals – *Hinterhauptschilder*
 IP = interparietal – *Hinterhauptschild* (between the two parietals)

b. side view:

IL = infralabials
 L = loreals – *Zügelchilder*
 ME = mental
 NAS = nasal
 PF = prefrontal
 PM = postmental
 PO = postsuboculars

NU = nuchals
 PF = prefrontals – *Stirnschilder*
 RO = rostral
 SC = supraciliaries
 SO = supraoculars – *Augenbrauenschilder*.

PRO = preocular
 PR = presuboculars
 RO = rostral
 SC = supraciliaries
 SL = supralabials
 SN = supranasal
 SO = supraoculars – *Augenbrauenschilder*

lowing the nomenclature of Merrem (1820) who, in a work published only a few years before the Commissie left Europe, provided names for lizard head scales. While Merrem wanted to stay true to the “gemeinem Sprachgebrauch” so as to be understood when describing species (Merrem 1820:xii–xiii, common vernacular), with regard to the scales of the head he needed “Kunstwörter” (artificial words) and thus labelled a dorsal view of a European *Lacerta* (*Lacerta ocellata* Daudin 1802, now *Timon lepidus* (Daudin 1802)). For lateral and ventral head scales, he only provided reference to a snake (*Coluber carinatus* Linnaeus 1758, a name which Merrem applied to a number of unrelated species). Merrem's key, in parallel German and Latin, reads:

- A. das Wirbelschild, die Wirbelschilder/Scutum vertebrale.
Scuta vertebralia.
- B. die Hinterhauptsschilder/Scuta occipitalia.
- C. die Augenbraunschilder/Scuta superciliaria.
- D. die Schläfenschilder/Scuta temporaalia.
- E. die Stirnschilder/Scuta frontalia posteriora.
- F. die Schnautzenschilder/Scuta frontalia anteriora.

- G. das Rüsselschild/Scutum rostrale.
- H. die hintern Augenschilder/Scuta ocularia posteriora.
- I. die vordern Augenschilder/ Scuta ocularia anteriora.
- K. die Zügelschilder/Scuta lorea.
- L. die Nasenlöcherschilder/Scuta nasalia.

It is likely that the lack of direct reference to a lizard for the lateral and ventral head scales made it difficult for Müller to cover these areas in his descriptions, explaining why he emphasized the dorsal head shields.

To make it easier to transfer Müller's somewhat antiquated terminology into modern terms we here present a simplified key (Figs. 5a–b).

Müller's terminology is not always very precise. His notes in general were intended as basic material which needed to be overworked for future publication. Similarly, van Oort's artwork, as meticulously as it may have been in general has certain flaws: the small scales around the eye are only hinted at quite imprecisely, while he generally omitted the eyelids completely. Müller especially does not clearly distinguish between supraciliaries and supraoculars.

MÜLLER'S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_024-025)

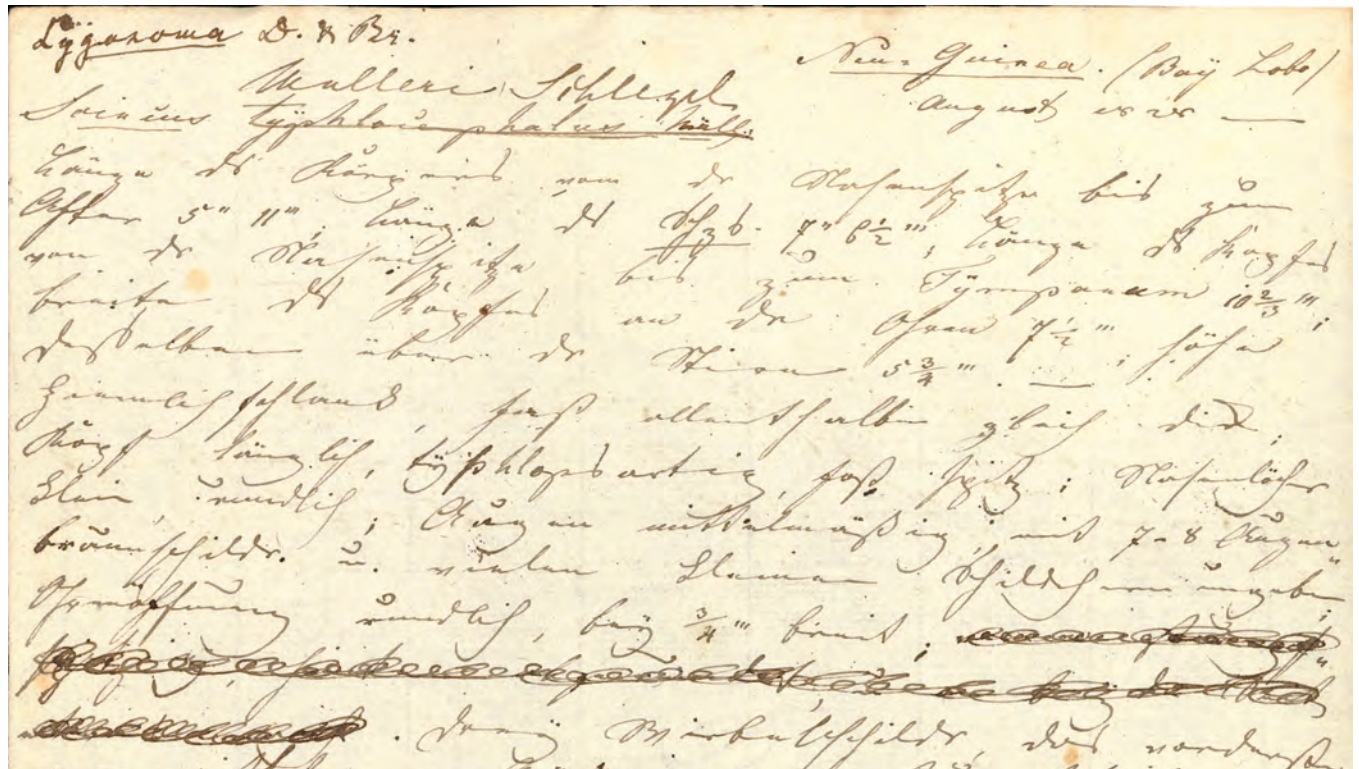


Fig. 6. The beginning of the first, but unpublished description of *Scincus muelleri*. The usual measures of length at that time differed quite a lot from country to country. In the Netherlands a tendency prevailed to use the French units of measurements: foot (in French: pied), inch (pouce) and line (ligne), which were indicated with one, two and three apostrophes (i.e., 1 pied = 32.5 cm; 1 pouce = 2.71 cm; 1 ligne = 2.26 mm) (Jacobs and Koch 2021).

Top three rows:

Lygosoma D. & Br. [=Duméril and Bibron; added later, different handwriting]

Mulleri, Schlegel [subsequently added after line below was crossed out]

Scincus typhlocephalus Müll.

Neu=Guinea. (Bay Lobo)

August 1828

Länge des Körpers von der Nasenspitze bis zum After 5" 11''' [= 16.0 cm]; *Länge des Schzs.* [= Schwanzes] 7" 6 ½''' [= 20.4 cm]; *Länge des Kopfes von der Nasenspitze bis zum Tympanum* 10 ⅔''' [= 2.4 cm]; *Breite des Kopfes an den Ohren* 7 ½''' [= 1.7 cm], *Höhe desselben über der Stirn* 5 ¾''' [= 1.3 cm]. —

Ziemlich schlank, fast allenthalben gleich dick; Kopf länglich, typhlopsartig, fast spitz; Nasenlöcher klein, rundlich; Augen mittelmäßig, mit 7–8 Augenbraunschilde [Supraocularia] u. vielen kleinen Schildchen umgeben; Ohrenöffnung rundlich, bey ¾''' [= 1.7 mm] breit; [crossed out]

[crossed out]

drej Wirtelschilde [frontals], das vorderste von mittlerer Grösse; vorne stumpfspitzig, hinten abgerundet u. an beyden Seiten etwas nach dem vordern Augenwinkel zu herablaufend; die beyden hintern Stirnschilde [prefrontals] etwas kleiner; vorne unregelmäßig abgerundet, hinten mehr drejheckig; auch drej Hinterhauptsschilde [parietals], wovon das vorderste mittelste am kleinsten: vorne drejheckig und hinten bey nahe spitzig ist. Die beyden übrigen Hinterhauptsschilde [parietals] sind länglich u. liegen in schräger Richtung; außer diesen finden sich noch 2 Stirnschilde; 1. Schnauzenschild [frontonasal], u. 1. Rüßelschild [rostral] u. mehrere Zügelschilde [frenals]. Füße u. Zehen kurz u. dick; die dritte oder mittelste Zehe der Vorderfüße mißt 2 ¾''' [= 6.2 mm].

Alle Schuppen ganz glatt, auf dem Rücken etwas breitlich, bey nahe sechseckig; auf dem Bauch vorne abgerundet. Die äußere Seite aller Extremitäten, Kopf, Hinterhals u. ein breiter Streif, der sich vom hintern Augenwinkel bis zu den hintern Füßen zieht schwarz: dieser Streif wird von oben durch eine schmale Linie [word inserted above] begrenzt, welche gleich dem ganz untern Theil des Leibes, einem Lippenfleck, und einem Streif vom Mundwinkel zu den Vorderbeinen, hell ocher-gelblich ist;

— 025

der übrige Theil der Lippen, Kinn u. Kehle ist lividschwärzlich [livid = blueish]; Rücken u. ganze obere Seiten des Schzs. [= Schwanzes] ziegelroth mit schwärzlichen Punkten melirt, welche auf dem oberen Theil des Schzs [= Schwanzes] unregelmäßige Querbinden bilden. —

Dieser große schöne Scincus scheint in der Bay Lobo auf N. Guinea äußerst selten zusein. Nur ein Exemplar; welches die Inländer Lengerangurak nannte.

Length of the body from the tip of the nose to the cloaca 5" 11''' [= 16.0 cm]; length of the tail 7" 6 ½''' [= 20.4 cm]; length of the head from the tip of the nose to the tympanum 10 ⅔''' [= 2.4 mm]; width of the head at the ears 7 ½''' [= 17.0 mm], height over the forehead 5 ¾''' [= 13.0 mm]. —

Pretty slim, almost everywhere equally thick; head elongated, typhlops-like, almost pointed; nostrils small, rounded; eyes medium, with 7–8 supraoculars and many small scales surrounded;

ear opening rounded, about ¾''' [= 1.7 mm] wide;

Three frontals, the foremost of medium size; blunt-pointed at the front, at the back rounded off and on both sides running down towards the anterior corner of the eye; the two rear prefrontals somewhat smaller; at the front irregularly rounded, more triangular at the back; and three parietals, of which the foremost middle one is the smallest: triangular in front and almost pointed at the back. The other two parietals are elongated and lie in an aslant direction; besides these we find 2 prefrontals; 1 frontonasal and 1 rostral and several frenals. Feet and toes elongated; the third and middle one of the toes of the forefeet measures 2 ¾''' [= 6.2 mm].

All scales quite smooth, on the back a bit wider, almost hexagonal; on the belly rounded at the front.

The outer side of all extremities, head, hindneck a wide stripe that runs from the back of the eye to the hindfeet: this stripe is bordered from above by a narrow line, which like the very bottom part of the body, a spot on the lip, and a streak from the corner of the mouth to the forelegs, is of a light yellowish ocher; the rest parts of the lips, chin and throat is lividblack [livid = bluish]; back and the entire upper side of the tail brick red mottled with blackish dots which form irregular crossbands on the upper part of the tail. —

This large, beautiful skink seems to be extremely rare in the Lobo Bay in New Guinea. Just one specimen; called by the natives Lengerangurak.

It is surprising that Schlegel neither referred to Müller's notes nor adopted detailed information in his own description (Schlegel 1837:13–15) although he most certainly knew of them. The later added name "*Mulleri* Schlegel" at the top of the first description of the species instead of the crossed out "*typhlocephalus* Müll." (Fig. 6) makes it likely that this was corrected after 1837, when Schlegel had written and published his new description with the name that is still valid today. A comparison of the handwriting suggests that it was Schlegel himself who changed the name.

But above this correction we find a further addition: "*Lygosoma* D. & Br." (Fig. 6). It has to be assumed that this

was also added after 1837, although Müller himself used this name, originally from Hardwicke and Gray (1828), (NNM001001113_023) in a list of species which refers to Duméril and Bibron's *Erpétologie Générale* with the exact page numbers for the mentioned species in the fifth volume, published in 1839. This gives rise to the suspicion that this list was not produced during the expedition but well afterwards. A comparison of handwriting suggests that it was Schlegel who added this reference.

Lygosoma functioned for quite some time as a collecting basin of practically all newly described skink-species. *Lygosoma* as well as *Sphenomorphus*, both with a chaotic taxo-



Fig. 7. *Scincus oxycephalus* (NNM001000674). In the lower left-hand corner, we read “N. Guinée 1828 / B. Lobo”.

nomic history, derive from Greek words: “lygos” meaning bendable twig, which in connection with “-soma” describes the body perfectly well; and “spheno-” meaning wedge. So, the first refers to the body and the second to the shape of the head.

In his small vocabulary list Müller registers the vernacular names of quite a few species; the natives called *S. typhlocephalus* “Lengerangurak” (NNM001001113_185). But not only the lists of species names with their vernacular equivalence which are inserted here and there in his handwritten notes are remarkable; Müller obviously was deeply interested in ethnological aspects as his studies in his “Reizen en onderzoekingen in den Indischen archipel” prove. Müller’s ethnical interest was undoubtedly also reflected in van Oort’s drawings, which document not only weapons, clothing and utensils, but also the complexion and figure of various tribes of indigenous people.

SCINCUS OXYCEPHALUS REINW. AND SCINCUS TRESSIANUS REINW. (=LAMPROLEPIS SMARAGDINA (LESSON 1829))

The third species of skink dealt with in Müller’s notes, right after *S. typhlocephalus* and *S. multifasciatus* Kuhl from Java and Sumatra, is *S. oxycephalus*, a name attributed to Reinwardt, and identified by Schlegel as *S. smaragdinus*.

Lesson (1829, 1830a, 1830b) was the first to name this species, when he described a green form as *S. smaragdinus* and a brown one as *S. viridipunctus*, based on specimens from Oualan which have since been lost.

Again, Müller’s handwritten nomenclature was corrected—in this case twice (NNM001001113_027). The first name unfortunately is no longer readable since it was crossed out heavily; only the name “Boie” at the end seems clear. Crossed out as well but still readable is “oxycephalus” right above it.

Retroactively added—as for *Sphenomorphus muelleri*, and obviously of the same hand—we find “*Lygosoma* D. & B. v. p. 738” written on top of the page referring again to the 1839 *Erpétologie Générale* volume with the page number.

This drawing of *S. oxycephalus* was glued (Fig. 7), together with the drawing of a completely brownish skink labelled *Sc. Trefsian* (Ambone Apr. 1828) onto one sheet of paper (NNM001000674). We read on the drawing of the brown form, one of the few which are identified in van Oort’s “Lyst der teekningen” (NNM001001115_002) as van Raalten’s work (Fig. 8), “Ambone” while in the line before “*Scincus oxicephalus* Reinw.” is mentioned drawn by “P. van Oort”.

Most interestingly the sheet carries in its upper righthand corner the handwritten indication “Tab 11” which obviously refers to Schlegel’s “Abbildungen”, where both drawings are reproduced—again reversed—and identified with the caption “*Scincus Smaragd.*” (Schlegel 1839: Tab. 11) whereas at the bottom of this page we find in the same hand: *Scincus coelestinus*. This version is presented in the online-archive. Obviously this was the shelf name used for this species, since Schlegel mentions in his handwritten notes: “Sous le nom de *coelestinus* en Musée” (NNM001001387_006; under the name of *coelestinus* in the Museum). And here he adds the name “*Tresfiamus* Rw.” as well.

The varying spelling of the latter epitheton becomes even more puzzling when we include Schlegel’s own first mention of the species: more than a decade before his published description Schlegel lists, in his brief account of Heinrich Boie’s “*Erpétologie de l’île de Java*”, the species owned by the museum in Leiden: „Notre Musée compte les espèces suivantes: (...) *tressianus* Reinw. N. esp.” (Schlegel 1826a:235–236). This must be considered the first mention of the species with attribution to Reinwardt who presumably obtained it during his time in the East Indies and had it shipped to Leiden. Boie, who studied Reinwardt’s material for the preparation of his manuscript, likely included it there; it would be tremendously



Fig. 8. *Sc. Trefsian* (NNM001000674), drawn by Gerrit van Raalten, as van Oort's list of drawings indicate, although the work itself is not signed. In the lower left-hand corner we read: "Ambone Apr 1828", which most probably is Schlegel's hand, which the French spelling also supports. The very same drawing can be found in the archive with a different, most probably corrupted spelling of the species: "*Scincus trisfanus*" (NNM001000689_001), although it must be conceded that the second "s" might be decoded as a long-s. Again its provenance is given as "Ambone".

With the variation *Scincus Trefsianus*, another drawing (NNM001000693, unsigned, without date) is found in the online-archive with an additional head study. Possibly this is the drawing that van Oort referred to in his list (NNM001001115), since the spelling matches completely.

interesting to know more precisely what he had to say about it. Schlegel merely published in his "Notice" a list of the species Boie had dealt with. It remains a mystery why Schlegel again changed the spelling of the name later in the same year, when he published the German version of his "Notice", to *Scincus "Trepianus" Reinw. N. sp.*" (Schlegel 1826b:290–291). One explanation might be that Boie used both versions, *Scincus tressianus* and *Scincus Trepianus*, in his *Erpetologie de Java*.

Subsequent authors also used variants of Reinwardt's name. Duméril and Bibron (1839), followed by Gray (1845:79), listed *Scincus tressianus* in the synonymy of *Lygosoma smaragdinum* and *Keneuxia smaragdina* respectively, while Guérin Méneville (1844), following an unpublished manuscript by Cocteau, listed *Sc. Trefsianus* in the synonymy of *Scincus valencienesii*.

These variations caused us to first consider the possibility of misreadings caused by confusion of "f" in handwriting with the long "s" which can be easily confused with "f" by inexperienced readers, leading us to try to identify a biologist with the name Tress. As it now turns out, the double letter was not meant as a long "s" having been confused with a "f"; it was exactly the other way around: the correct spelling was a double "ff" right from the beginning. The person honoured by Reinwardt with the nomination of the skink was the German soldier August Franz Treffz (1770–1819), a member of the so-called Kapregiment who arrived in the Netherlands Indies in 1791 and subsequently worked as a collector for

Reinwardt, particularly in Sulawesi. In 1819 a collection of weapons, clothes, and also some skulls of chieftains from Celebes were sent to Reinwardt (Weber 2012:140).

The potential for Reinwardt's material having come from Treffz in Sulawesi provides an explanation for another mystery. *Lamprolepis smaragdina* does not occur further west than the Lesser Sundas (Roux 1911, Mertens 1930, Kaiser et al. 2011, Linkem et al. 2013). So, even though Boie and Schlegel must have thought that Reinwardt's specimen or specimens originated from Java, they certainly come from further east.

Lamprolepis smaragdina occurs in two basic colours: brown and green. This—most certainly at the time of their discovery—must have been extremely confusing and likely led to the two names discussed here, *Scincus oxycephalus* for the green form and *Scincus treffsianus* for the brown form. There is much variation in colour and pattern, that does not fully correlate with locality: in some places, there are just green forms, in others just brown forms, and in yet others there are both green and brown lizards, or some individuals where the green is partially replaced by brown (Linkem et al. 2013, Greer 1970). East Timorese specimens are either entirely brown or green anteriorly and brown posteriorly so that the fore- and hindlimbs are differently coloured (Kaiser et al. 2011). Less commonly they are entirely green like PNG specimens, such as found on Atauro Island just north of Timor, where totally brown specimens were not found (Kaiser et al. 2013).

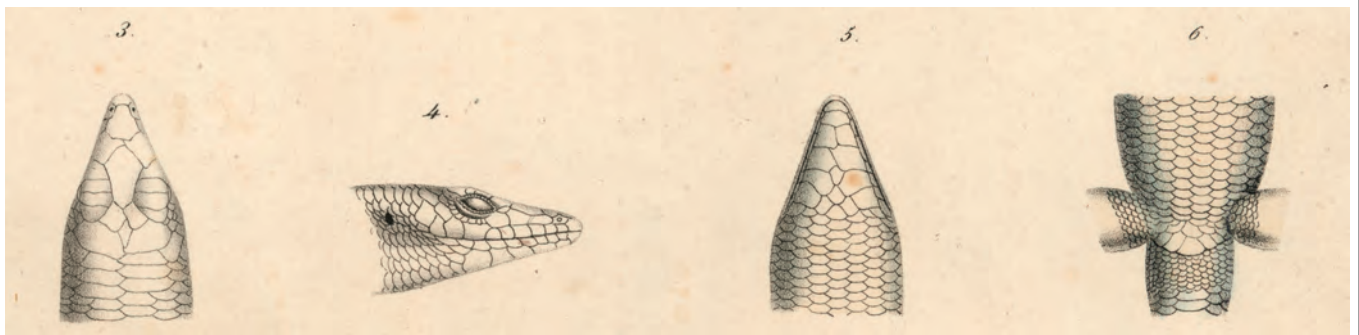


Fig. 9. Details of *S. smaragdinus*: Head from above, from the side and below; cloaca. As in the case of *Sphenomorphus muelleri*, we are confronted with an extremely meticulous rendering, in which each single scale can be identified.

So, we obviously face the situation that the natural scientists—in contrast to Schlegel later—considered the specimens they caught within five months on Ambon and New Guinea to belong to two distinct species.

This differentiation is noted in the transport lists: 7 specimens of “*Scincus oxycephalus* Rein.” appear on Müller’s “Catalog” of reptiles from New Guinea (NNM001001423_001, without a specific date), with another 3 from Timor and New Guinea along with 16 “*Scincus Trefsiianus* Rein.” from “Amboina” (NNM001001436_004) listed on his “Catalogus” for the “Versending L” and in “Verzending M” (NNM001001437_001) 18 specimens which took place “in den maand february 1831”.

The distance between the two isles, Ambon and New Guinea, is quite large, and even greater from Timor to New Guinea, and we have to ask ourselves whether we are talking about one or in the end maybe even two species. Genetic studies (Linkem et al. 2013) suggest that the samples from the Moluccas (including Ambon) are distinct from those from New Guinea. But even on Ambon itself the subspecies *L. s. moluccarum* (Barbour 1911) possesses multiple colour variants (Glässer-Trobisch and Trobisch 2021:52).

Duméril and Bibron (1839) synonymized Reinwardt’s *Scincus oxycephalus* and *S. trefsiianus*, Lesson’s *Scincus smaragdinus* and *S. viridipunctus* [as *viridipunctatus*], along with other manuscript names from the Paris Museum collection, as *Lygosoma émeraudin* and added “*Lygosoma smaragdina*. Nobis.” (1839:738), although the taxon had been described first by Lesson 10 years earlier. They treated the various colour patterns as varieties within a single species. Their description is stated to be based on specimens from Java collected by “Kuhl et Van Hasselt” (1839:740), along with others obtained from Waigiou and Rawak by Quoy and Gaimard, who visited those islands in 1818 during the voyage of the *Uranie*, led by Louis de Freycinet. Again, there is an issue with specimens purportedly from Java. Kuhl arrived in Java in December 1820 and died there within a few months, while Van Hasselt survived until 1823, but also remained in Java (Adler 2007). Possibly, there was an error created in the donor during the transfer of these specimens from Leiden to Paris, and they were actually Reinwardt’s specimens.

Guérin-Méneville goes further than Duméril and Bibron, stating, with reference to an unpublished note by Cocteau, that “les *Sc. caelestinus*, Valenciennes, *Sc. smaragdinus* de Lesson, et *Sc. oxycephalus* de Reinwardt, sont des jeune âges de cette espèce [= *Scincus Valensiennes*], et le *Sc. viridipunctatus*. Lesson, *Sc. trefsiianus*. Reinwardt, sont des individus adultes” (1844:12, *Sc. caelestinus*, Valenciennes, Lesson’s *Sc. smaragdinus*, and Reinwardt’s *Sc. oxycephalus*, are young ones of this species [= *Scincus Valensiennes*], and *Sc. viridipunctatus*. Lesson, *Sc. trefsiianus*. Reinwardt, are adult individuals).

Schlegel calls his skink *Scincus Smaragdinus* in 1839 and refers to Lesson complaining eight years earlier that he only had an unprecise drawing not rendered in life but from a dead reptile while he himself was able to base his description on van Oort’s drawing (Fig. 7). For precise differentiation Schlegel again added—as in case of *S. muelleri*—four detailed drawings of the head and cloacal region (Fig. 9).

Beside this Schlegel concentrated on the most outstanding feature, the colour, which in this species is highly variable as discussed above: from the rich emerald green, over a reddish brown and an olive green with yellow; the variation extends even to black.

With regard to the distribution area he points out that this taxon inhabits “oft weit von einander entfernte Inseln” (Schlegel 1839:34; islands that are far apart). In his handwritten, unpublished manuscript (NNM001001387_006), which unfortunately is not datable, he is more precise and names “Amboina. Timor. Celebes. N. Guinea.” and most surprisingly “Suriname”. Müller emphasizes this aspect and claims that *S. smaragdinus*—contrary to “*Sc. Kunhlii* [sic!] (*Euprepes Sebae*)” is not found “bewesten de geografische lengte van Timor en Celebes, doch van daar tot Nieuw-Guinea eu het eiland Oealan, een der oostelijkste eilanden van de groep der Carolinen” (Müller 1857:171; not west of the geographic longitude of Timor and Celebes, but from there to New Guinea and the island of Ualan, one of the easternmost islands in the group of the Carolines).

As the major differentiating feature besides the colour, he points to the mottling of the skins: “Celles d’Amboine ont les taches grandes” “et celles de la Nieu Guinée sont presque

destituaires de ces taches” (NNM001001387_006; The ones from Ambon have big spots; and those of New Guinea are almost free from spots).

His statement of the length of the skinks needs some explanation: Schlegel mentions “presque 1/4 mètre en longueur” (NNM001001387_006; nearly a quarter of a metre long) which has to be set in comparison with the data given by Duméril and Bibron with a total length of 25” 2” (Duméril and Bibron 1839:740). While Müller and Schlegel still used the duodecimal system based on the French measurements foot, pouce and ligne, Duméril and Bibron had adjusted already to the new decimal system introduced by Napoleon which is

very near to our system with the centimetre and millimetre of today even if the way of writing confusingly resembles the old tradition. Their measurement of 25” 2” therefore equals 25.2 cm which corresponds to Müller’s handwritten notes taken more than 10 years before—in August 1828—on New Guinea with a body length of 3” 9 ½” [= 10.28 cm] plus a tail length of 5” 7” [= 14.13 cm] which adds up to a total length of 26.41 cm and indeed suggests an adult individual. It remains—here as well as with the other species—an open question, though, which individuals of the sampled skinks he used for measurements; obviously the given measures cannot be interpreted as averages.

MÜLLER’S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_027-028)

Top five rows:

Lygosoma D. & B. v. p. 738 [subsequently added; different handwriting]

Scincus smaragdinus Less. [subsequently added; different handwriting]

(Baý Lobo) August

1828

oxycephalus [crossed out]

[not readable] *Boie* [crossed out]

Länge von Nasenspitze bis zu After 3” 9 ½” [= 10.3 cm] Länge des Kopfes von der Nasenspitze bis zum Tympanum 11” [= 24.9 mm] Länge des Schz. [Schwanzes] 5” 7” [= 15.1 cm]; Länge der Vorderfüße mit den Zehen 1” 4” [= 3.6 cm] Länge der Hinterfüße mit Zehen 1” 9” [= 4.7 cm] drei Wirbelschilder [frontals]; das erste oder vorderste so groß als die beiden hinteren; vorne lanzettförmig, scharf dreieckig, hinten stumpfspitzig. Nasenlöcher klein rundlich; Schuppen des Rückens ziemlich groß, vorne abgerundet, fast glatt; nur hin u. wieder bemerkt man einige [word inserted above] unregelmäßige Striemen in den Schuppen. Alle obere Theile frisch grasgrün, bisweilen mit bläulichem An[crossed out: flug]strich; auf dem Schwanz am blaßten, u. dem Steiß oder Coccyx [Steißbein] mehr blaß röthlich; eben so ist auf der äußeren Seite der Extremitäten matt braunröthlich mit kleinen weißen Fleckchen geschmückt; ganze untere Seite des Körpers [crossed out: matt]

-028

schwach bläulichgrün aber auch schmutzig gelblichgrün.

[subsequently added?]

Einzeln im hohen Wald von Lobo; häufiger auf Timor. – die Inländer bei Lobo nennen diesen Scincus Tekitankie.

Length from the tip of the nose to the cloaca 3” 9 ½” [= 10.3

cm], length of the head from the tip of the nose to the tympanum 11” [= 24.9 mm], length of the tail 5” 7” [= 15.1 cm]; length of the front feet with the toes 1” 4” [= 3.6 cm] length of the hind feet with toes 1” 9” [= 4.7 cm]. Three frontal shields; the one first and most at the front as big as the two rear ones; at the front lanceolate, sharply triangular, at the rear blunt-pointed. Nostrils small and rounded; scales of the back quite large, rounded at the front, almost smooth; only now and then one notices some irregular streaks in the shields. All upper parts freshly grass-green, occasionally with a bluish tinge; on the tail palest, and on the rump or coccyx [= tailbone] more pale reddish; also adorned on the outer side of the extremities matt reddish brown with small white spots; the entire lower side of the body pale bluish green but as well dirty yellowish green.

[subsequently added?]

Solitary in the high forest of Lobo; more common on Timor. - The locals at Lobo call this Scincus Tekitankie.



Fig. 10. *Scincus erythrolaimus* Müll., very probably labelled by Schlegel (NNM001000606). Obviously, the original drawing (NNM001000607) was cut out for certain purposes and glued on another sheet. The caption of the original drawing is “*Scincus erythrolaimus* Müll. n. sp.” and underneath “*Lygosoma melanopogon* D Bibr”.

SCINCUS ERYTHROLAIMUS MÜLL. (= SPHENOMORPHUS MEYERI (DORIA 1874))

The third skink described in the region of Lobo obtains its epitheton from its red throat. This species does not show sexual dimorphism in throat pigmentation. Müller's colour specification, based on eight specimen he caught within these eight weeks (NNM001001436_004) derives from the old Greek *erythros* (red) and *laima* (throat) (Fig. 10).

Duméril and Bibron, who published a description and name, preferred the name *Lygosoma melanopogon* deriving from *mélas* (black) and *pōgōn* (beard). As synonyms they listed: *Scincus naevius*. Péron, Mus. Par., *Scincus Erythrolaimus* [sic]. Müller, Mus. de Leyde, *Scincus melanopogon*. Müller, Mus. de Leyde (Duméril and Bibron 1839:723–724). Müller strongly objected to this and reported for Timor: “boeide een klein hagedisachtig diertje (schink) het meest onze aandacht; het was te dien tijde nog niet beschreven, en werd, wegens zijnen zwarten baard, door mij *Scincus melanopogon* genaamd (Müller 1857:140; a small lizard-like animal (skink) captivated our attention the most; it had not been described at that time, and was called by me *Scincus melanopogon*, because of its black beard). He mentioned that they found this species in large numbers on Timor and on “Poeloe Samauw” (today: Semau island, west of Timor), “terwijl zij ons in geen ander gedeelte van den Archipel ooit voorkwam” (140; while it never occurred to us in any other part of the Archipelago). He then notes that “Ten onrechte vereenigen de Heeren Duméril en Bibron (...) deze soort met eene andere, door mij *Scincus erythrolaimus* genaamd en alleen aan de westkust van Nieuw-Guinea waargenomen” (Fn 40, 332; Messrs. Duméril and Bibron wrongly associate this species with another, which I call *Scincus erythrolaimus*, and which was observed only on the west coast of New Guinea).

As the differentiating aspect he refers to the colour of the throat: “Mijn *Sc. erythrolaimus* heeft geen spoor van zwart aan de kin, maar daarentegen eene donkere streep aan iedere zijde van den hals. Onderlip en kin zijn bij hem licht rood” (p. 322; My *Sc. erythrolaimus* has no trace of black on the chin, but, on the contrary, a dark stripe on each side of the neck. Its lower lip and chin are light red) which clearly reflects his epitheton. Additionally, *S. melanopogon* does not—as Müller notes—show a dark stripe along the sides of the neck but usually one very light in colour.

The confusion by Duméril and Bibron when combining not just Müller's *Scincus melanopogon* and *Scincus erythrolaimus* into a single species, but also a third species (represented by a specimen in the Paris collection collected by Quoy and Gaimard aboard the *Uranie*, many years earlier) as part of that same species, led to a century and a half of confusion. Duméril and Bibron's name *melanopogon* became applied to the New Guinea species that Müller had planned to name *erythrolaimus*, and which did not have a solid black throat, while the black-throated species that Müller had named *melanopogon* became known by the later name *Sphenomorphus florensis* (Weber 1891). Nevertheless, Duméril and Bibron synonymize *L. melanopogon* and Müller's manuscript name *S. erythrolaimus*. They provided quite a composite description based on specimens representing three different species, the first a specimen collected by Müller and Macklot of *S. erythrolaimus*, which was obtained from the Leiden collection by the museum in Paris (MNHN 1244). The second species is represented by Müller's *Scincus melanopogon* and the old specimen from Péron (*Scincus naevius*), and the third species was collected from Quoy and Gaimard during the voyage of the *Uranie*.

MÜLLER'S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_033-034)

Scincus erythrolaimus Müll.[=in the above line] *melanopogon* [=hardly readable, partially erased; possibly subsequently added.

(Baý Lobo) July 1828.

Alt ausgewachsen Exemplar.

Länge von der Nasenspitze bis zum After 3'' 11''' [= 10.6 cm];
 Länge des Kopfes von der Nasenspitze bis zum Tympanum 9
 2/3''' [= 2.2 cm]. Länge des Schzs. [= Schwanzes] 4'' 6''' [=
 12.2 cm]; Länge der Vorderfüße mit Zehen 1'' 1 1/2''' [= 3.1
 cm] Länge der Hinterfüße mit Zehen 1'' 9''' [= 4.7 cm], drei
 Wirbelschilder [Frontale], wovon das vorderste am größten
 vorne dreiseitig u. hinten stumpfspitzig auslaufend; drei Hin-
 terhauptschilder [parietals], zwei Stirnschilder [prefrontals];
 zwei Nasenschilder [nasals], worin die kleinen rundlichen Na-
 senlöcher liegen; ein Schnauzen- [= frontonasal] und ein Rüssel-
 schild [rostral]. Alle Schuppen ganz glatt, ziemlich klein die des
 Rückens, breit vorne abgerundet, die der untern Seite wenig
 kleiner; Spitzenhälfte des Schzs. [=Schwanzes], oben u. un-
 ten mit breitlichen Schildchen versehen. Augen ziemlich groß,
 mit 6–7 Augenbraunschilde [supraoculars] u. vielen kleinen
 Schildchen umgeben. Obere Seite des Körpers und des Schwzs,
 [=Schwanzes] graulich braunröthlich, mit vielen unregelmäßi-
 gen, zum Theil

_034

aus Fleckchen bestehenden schwarzen Querstreifen; an den
 Seiten des Körpers u. der äußeren Flächen der Extremitäten
 dicht mit kleinen Fleckchen u. Punkten besät; gleich hinter
 der ovalen Ohröffnung stehen drei größere schwarze Flecken;
 Kinn u. Lippen ziegelroth; untere Seite des Körpers, Schwzs,
 [=Schwanzes] u. der Extremitäten schmutzig hell gelblich
 blaugrau.

Nicht selten im Urwalde selbst bis zum Seeufer der Baý Lobo.

– Die Einwohner nannten ihn Wanganmenine.

Old fully grown specimen.

Length from the tip of the nose to the cloaca 3'' 11''' [= 10.6
 cm]; length of the head from the tip of the nose to the tympa-
 num 9 2/3''' [= 2.2 cm]. Length of the tail 4'' 6''' [= 12.2 cm];
 length of the front feet with toes 1'' 1 1/2''' [= 3.1 cm], length
 of the hind feet with toes 1'' 9''' [= 4.7 cm], three frontals,
 of which the foremost is the largest on the front three-sided
 and tapering off at the back; three parietals, two prefrontals;
 two nasals, in which the small rounded nostrils lie; one fron-
 tonasal and one rostral. All scales completely smooth, rather
 small those of the back, broadly rounded at the front, those
 on the lower side second half of the tail, which are a little
 smaller, with broad shields above and below. Eyes quite large,
 surrounded by 6–7 supraoculars and many small scales. Up-
 per side of body and tail grayish reddish brown, with many
 irregular black horizontal stripes, partly consisting of spots; on
 the sides of the body and the outer surfaces of the extremities
 densely seeded with small spots and dots; directly behind the
 oval opening of the ear there are three larger black spots; chin
 and lips brick-red; lower side of the body, tail and extremities
 dirty light yellowish blue-gray.

Not infrequently in the primeval forest itself to the shores of
 the Lobo Bay. —The locals called it Wanganmenine.

One might interpret the erasing of the epitheton “*melanopogon*” as a consequence of the above mentioned discussion. According to Müller’s differentiation of the two species we find in his shipment-list of February 1831 two different records: 8 specimens of *Scincus erythrolaimus* Müll. from Nieuw-Guinea, and on the same page four specimens of *Scincus melanopogon* from Timor, and 7 specimens from “Poeloe Samao en Java”. The list “Verzending M” (NNM001001437) mentions 10 specimens from “Poeloe Samao” (=Semau) and 16 specimens from Timor.

The species to which Müller applied the name *Scincus erythrolaimus* was subsequently named *Lygosoma meyeri* by Doria (1874), and is now known as *Sphenomorphus meyeri*, while the species from Timor and Samao, which had been known for many years as *Lygosoma florense* Weber 1891, now retains Müller’s name *melanopogon* (but with the published authorship being Duméril and Bibron 1839), now *Sphenomorphus melanopogon* (see Shea 2012 for the transfer of the name *melanopogon* from one species to the other). Due to the lack of differences in colouration and morpho-

logical aspects in the latter species, *Lygosoma florense* Weber 1891 and *L. kuehnei* Roux 1910 were synonymised with this species, without subspecies, although further genetic work might provide additional insights into taxonomic boundaries between populations (Shea 2012). The distribution of *Sphenomorphus melanopogon* is rather large; it ranges from Sumbawa in the west to the Kei Islands in the east, with isolated populations on islands near Java (Shea 2012: 19), whereas the New Guinean species *Lygosoma meyeri* (with *Hinulia papuensis* Macleay 1877 as a synonym) ranges from Pulau Gag in the far west to a line approximately between Moru and Lae in the east (Shea 2012: 24).

Shea (2012:4) drew attention to “a colour drawing of *S. florensis* prepared in 1829 by the artist Pieter van Oort (...) which clearly shows the black throat of this species”, published by Brongersma (1942, pl. VI). Brongersma obviously had compiled drawings of various but very similar species in order to show the differences. Besides *Lygosoma florense barbouri* from Samao, pinx. P. van Oort (1829) [now *Sphenomorphus melanopogon*], Brongersma depicted *Ablepharus*

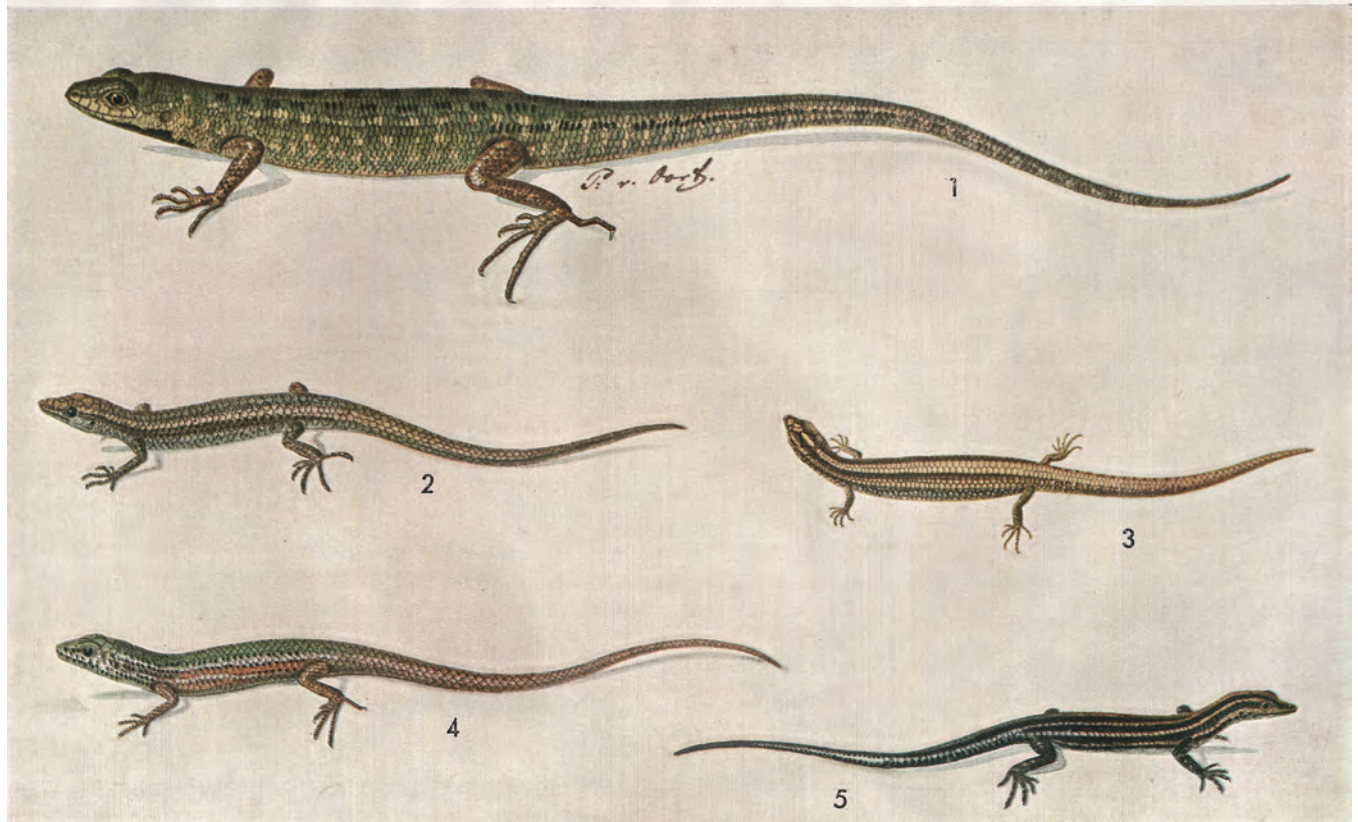


Fig. 11. Similar species of *Scincus*, published in Brongersma's "Notes on scincid lizards" (1942: pl. VI). Fig. 1. *Lygosoma* (*Sphenomorphus*) *floreense barbouri* (Dunn), from Samao, pinx. P. van Oort (1829). Fig. 2. *Ablepharus boutonii schlegelianus* (Mertens), Samao. Fig. 3. *Lygosoma* (*Leiolepisma*) *relictum* Vinc, Panimbang, Bantam Residency, W. Java. Fig. 4. *Lygosoma* (*Leiolepisma*) *fuscum spinauris* M. A. Smith, Timor. Fig. 5. *Ablepharus boutonii leschenault* Coct., Samao.

boutonii schlegelianus from Samao [now *Cryptoblepharus schlegelianus* Mertens 1928], *Lygosoma relictum* (Panimbang) [now *Lipinia relictus* (Vinciguerra 1892)], *Lygosoma fuscum spinauris* Smith 1927 (Timor) [now *Carlia peronii*] and *Ablepharus boutonii leschenault* [now *Cryptoblepharus leschenault* (Cocteau 1832)], again from Samao. With the help of the online archive (Gassó et al. 2020) the assumption that van Oort was the artist—with exception of *L. relictum* probably drawn by Adrianus Johannes Bik—can be supported. It is possible to estimate the concordance between the species and numbering on Brongersma's plate and that of van Oort, which may explain the components that have been cut out of the latter plate, which was also likely to have originally consisted of five species, so as to fit the more compact arrangement by Brongersma. The drawing of Brongersma's Fig. 4 *Lygosoma fuscum spinauris* is identical with the skink labelled as No 3. *S. melanopogon* in what remains of van Oort's composite drawing, though the species illustrated is *Carlia peronii*, not *Sphenomorphus melanopogon*. And Brongersma's Fig. 5 *Ablepharus boutonii leschenault* is identical with Müller's *S. furcatus* on van Oort's illustration (NNM001000616). This makes it likely that the missing drawing 5 of van Oort's illustration, labelled by him as

Scincus arenarius from Poelo Samau, will be 2 (*Ablepharus schlegelianus*) of Brongersma's plate, and the missing drawing 2 of van Oort's illustration (likely removed from the top of the illustration), labelled by him as *Scincus melanopogon* from Timor, will be 1 on Brongersma's plate. This leaves the unnamed 1 from van Oort's illustration as likely to be the equivalent of Brongersma's lizard 3, a drawing that likely originally sat at the top left of van Oort's collage (Fig. 12).

The handwriting is definitely by Pieter van Oort, whereas it remains unclear who later added new determinations: *Ablepharus Peronii* DB (= Duméril and Bibron) to *Sc. furcatus*, and in the lower left-hand corner *Eumeces Lessoni* DB?, *Scincus cyanurus* Lesson, *Scincus furcatus* Müller, Samau, although this must have been in 1839 or later, when Duméril and Bibron's *Erpétologie Générale* was published. Although the earlier handwriting is definitely van Oort's the names themselves definitely stem from the scientists of the group, attributing the names to Müller and Macklot. Van Oort must have acted on information by Müller or Macklot. It must be doubted that he was keenly interested in nature apart from his drawings. A look in the hundreds of pages of his diaries suggests that his own personal interests were mainly of ethnological, geographical and in the broadest sense cultural nature. One would have ex-

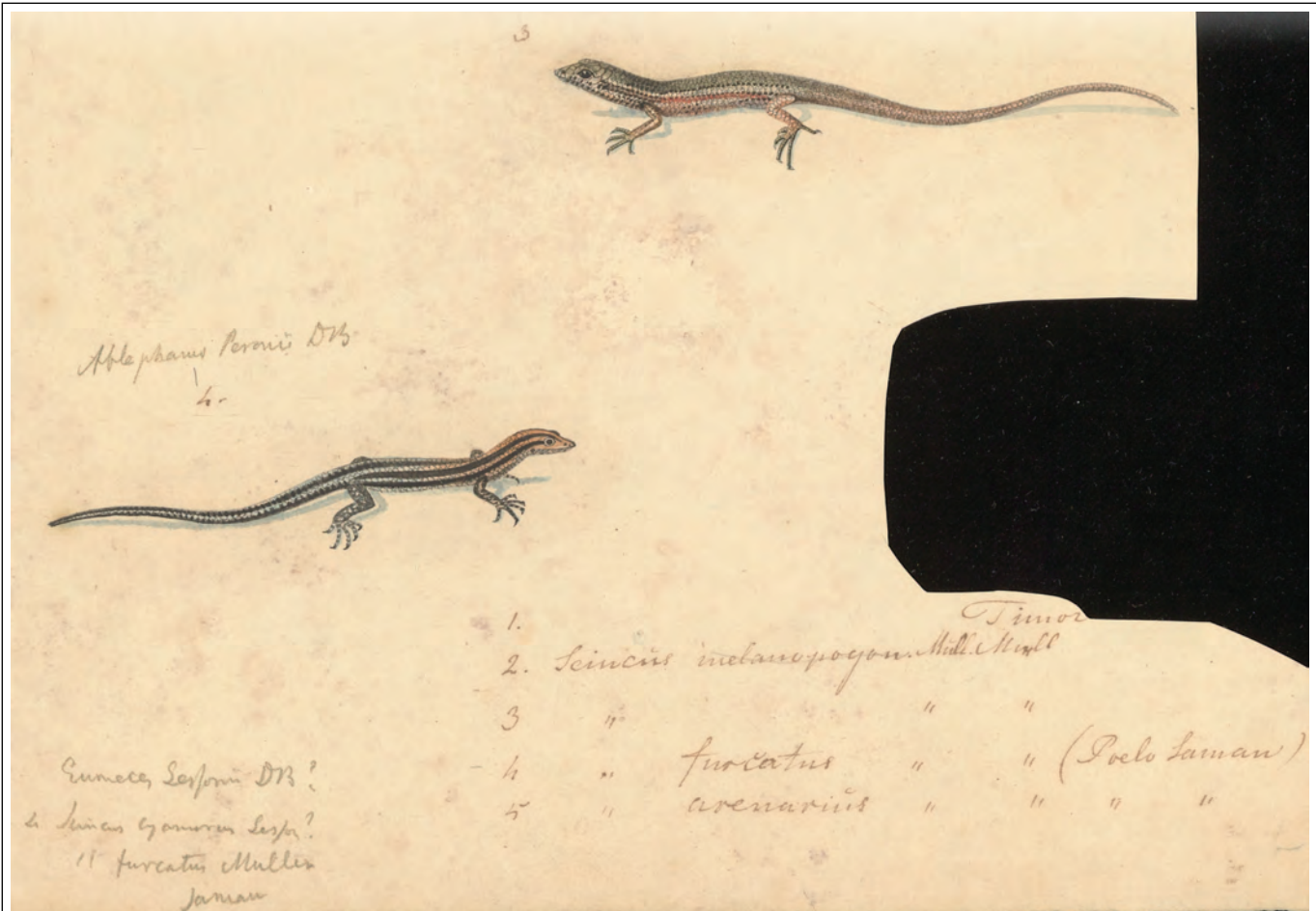


Fig. 12. Collage of similar looking skink-species (NNM001000616). Pieter van Oort most probably was the painter, even if he did not sign the sheet. All in all it seems that Gerrit van Raalten's drawings—at least after the arrival of the second group in 1825—are quite rare.

pected some indication in his diaries about the genesis of his drawings. Instead, it must be assumed that the scientists pointed out aspects of each species they wanted to see reflected in the picture. Most probably the pictures were made soon after receiving the animals in question. Quite obviously they had to be processed—gutted and/or skinned in the case of mammals and birds, put in ethanol in case of amphibians and reptiles—soon after reception. In this perspective it is most amazing that the diaries do not provide any details of interactions with the naturalists (see Weber and van Zanen 2021a, 2021b). Even if he called them “diaries” himself, they have nothing to do with the genre of highly personal, mostly quite emotional testimonies of self-assurance. The fact that quite a few passages were revised by van Oort might imply that he was aware of the possibility that they might be published. At least, his superiors in Leiden were likely the first readers he would have had in mind. So private and/or emotional passages are very rare and reserved. We learn very little about the interactions in the group and the emotional side, even when they had to mourn the loss of a member.

Müller claimed that *Sc. melanopogon* was “Überall sehr gemein auf Timor u. Samoa” (NNM001001113_046: very common on Timor and Samoa), which obviously resulted in

the fact that he could catch 7 specimens and ship them to Leiden (NNM001001436_004). Separately he had put 4 further specimens into another jar “No. 1 van Timor”. In “No. 4 van Nieuw=Guinea” we find besides 8 *Sc. erythrolaimus*, 1 *Sc. typhlocephalus*, 3 *Sc. oxycephalus* and 2 *Sc. chalconotus*. The list “Verzending M” reports 10 specimens “van Poeloe Samao” (from Semau). This at least allows the conclusion that specimens were stored in separate jars according to the collecting localities. Unfortunately, we do not know how the specific individuals were labelled.

Apart from the name itself, “Le Lygosome barbe noir. *Lygosoma melanopogon*. Nobis” (Duméril and Bibron 1839:723), these latter authors restrict themselves to very detailed information about the squamation. The dark throat as the most distinctive character is not mentioned because it was not present in all of the three species they combined under this name. Obviously, Müller must have found this feature in all of his specimens, otherwise he would have indicated this.

While Duméril and Bibron give the locality “Timor” for the specimen of Müller’s *Scincus erythrolaimus* that reached Paris, this is incorrect (Shea 2012:4), because, as we know, the specimen was caught in the region of Lobo. However, the false attribution of this specimen to Timor further confused

understanding of the distribution of *Sphenomorphus meyeri* during the lengthy period when it was called *Lygosoma melanopogon*, by adding Timor to the distribution of a species otherwise known only from New Guinea.

When describing *Sphenomorphus meyeri*, Doria highlights a feature that Müller referred to as well: “Le squame della gola e delle parti inferiori del collo sono orlate di nerastro, in modo da formare, specialmente sopra quest’ultima parte, una vera reticolazione che è molto caratteristica” (Doria 1874:333, The scales of the throat and the lower parts of the neck are edged with blackish, so as to form, especially over the latter part, a true reticulation which is very characteristic). Decisive is that the throat of *S. meyeri* never reaches the solid black present in many *S. melanopogon*.

SCINCUS BIORCHUS MÜLL. (= EMOIA CAERULEOCAUDA (DE VIS 1892))

As a brief digression, we want to mention the beautiful, brilliantly blue-tailed skink which was treated in detail in Müller’s handwritten notes, but labelled with the distribution area Amboina. Pieter van Oort misspelled the name on his drawing as “*S. diorchus*” (NNM001000618). Müller had obviously claimed this species for himself under the name of *Scincus biorchus* Müll., which was corrected to “*cyanurus* (alt.)”, with the addition above the line “*Lessonii*, Bibr.” in lead pencil (NNM001001113_030). And indeed, Lesson (1830a, b) had described a very similar blue-tailed species two years after Müller had caught his specimens on Amboina—so neither of the two could have known about the other’s name choice—as *Scincus cyanurus* on the basis of “un grande nombre d’individus” (Lesson 1830b: 49, a great number of specimens) of which only some reached the Paris museum, collected by Lesson from “O-Taïti”. Schlegel, however in his handwritten notes in French not only ascribes the species to “Amboine. Timor”, but synonymizes it with *S. venustus* and *S. venustissimus* both with the addendum “Rw.” for Reinwardt.

In Müller’s transport list of February 1831 we find both species registered as “van Amboina”: *S. venustissimus* Rw. with 60 specimens (and 2 more from Samoa and Java) and not less than 150 specimens in “Verzending M” (NNM001001437_001, shipping M) and *S. biorchus* Müll. with 50. He ends his unpublished notes with the remark “äußerst gemein” (NNM001001113_031, extremely abundant) on Amboina; on a separate sheet, though, he extends the range: “traf sich ziemlich häufig auf Amboina, u. auch nicht selten in der Bay Lobo auf N. Guinea an” (NNM001001113_037, was found quite frequently on Amboina, and not infrequently in Lobo Bay in New Guinea), but the original title of this description was also changed from *Scincus venustissimus* Reinw. to *Scincus cyanurus*.

However, while Schlegel considered Lesson’s *Scincus cyanurus* and Müller’s *Scincus biorchus* to represent the same species, this is incorrect. *Emoia cyanura*, while having a huge distribution in Pacific Oceania, including the Solomons

and Vanuatu, east to Polynesia and north to Micronesia and Hawaii, does not extend west of the Admiralty Islands and Bismark Archipelago. Instead, the similar blue-tailed species in New Guinea and the Moluccas, including Ambon, is *Emoia caeruleocauda* (de Vis 1892). Despite the similarities in colour pattern, the two species are not closely related, and strongly differ in the shape and number of the lamellae under the toes, a feature not examined by Müller or Schlegel.

Subsequently, the species appellation “*Ablepharus Leschenaultii*, Cocteau/ Magaz/ Crÿphoblepharus, L’Études sur les Scincoides” was—probably by Schlegel—added to the sheet, referring to Cocteau (1832, 1836). Müller specifies the likeness with another species, that “Größe, Form und ähnliche Zeichnung von *Sc. venustissimus* Boie” (NNM001001113_049; Size, form and pattern similar to *Sc. venustissimus* Boie), one of the extremely rare references to another species that does not appear in Müller’s handwritten notes nor in any publication. This is all the more disturbing since two specimens of this taxon are listed in Müller’s “Catalogus” in February 1831 as having been obtained on “Poeloe Samao en Java” and not less than 50 specimens from “Amboina” (NNM001001436_003); a corresponding drawing is at least not recorded.

Schlegel erroneously considered both *S. venustus* and *S. venustissimus* (ascribing both names to Reinwardt [as “Rw.”] to be synonymous with *S. cyanurus* Less. et Garnot (Amboine, Timor) (NNM001001387_006)—the species now known as *Emoia cyanura*. The species Müller addressed as “venustus” stems from an Indonesian island. “Venustus”, meaning elegant, is certainly not an unusual epitheton. Shea and Miller (1995) many years later also used the name for an unrelated South Australian skink species, *Cyclodomorphus venustus*.

SCINCUS CHALCONOTUS MÜLL. (= EMOIA KORDOANA (MEYER 1874))

The next species to be considered is the first of three species arranged in a single collage (NNM001000672, Fig. 13). The three species shown in the picture have several features in common: body structure, overall colouration, shape and relative length of the extremities. On the other hand, they differ to such an extent that Müller could claim them as independent species: scalation, shape and pattern of the head, details in colouration and pattern of the body. Müller himself probably did not mount them on one sheet for the purpose of comparison; this was definitely done later in Leiden. However, it is their placement together, allowing comparison of the fine differences that become apparent, that raises the question of how precisely the painter, who in his list (NNM001001115_002) misspelled the species as *S. choleonotus*, reproduced details such as the number of scales. As far as the scales on the head are concerned, this can be checked here and there on the basis of the handwritten information. The conformity of data in the text and drawing strongly suggests that the painter and the describer worked directly together. In the case of coloura-

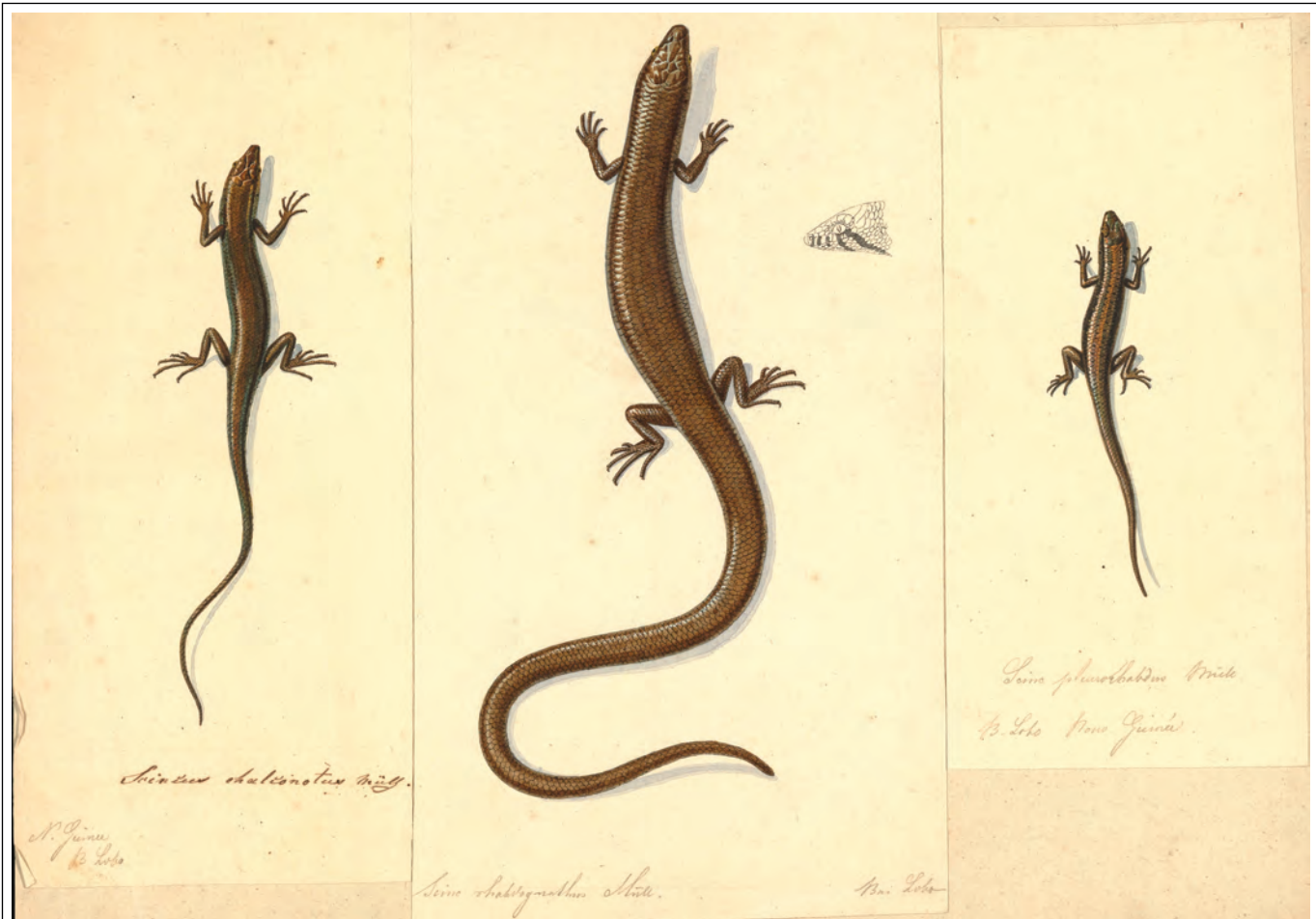


Fig. 13. (NNM001000672): Probably in Leiden, three very similar species—all from Lobo Bay—were cut out and arranged on one sheet: *Scincus chalcinotus* Müll. (N. Guinee, B. Lobo), *Scincus rabdognathus* Müll. (Bai Lobo) with an additional head study, 2 *Scincus pleurorhabdus* [sic!] Müll. (B. Lobo, Novo Guinée). Details of the head scalation and colouration reproduced in their respective sizes have been precisely observed by the painter.

tion, the verification is only possible in a much less concrete way, insofar as we are not dealing with countable, but rather nonconcrete, aspects.

The intricate interplay of image and text would have made an intensive exchange between author and painter indispensable. Thus, the scientist would have to indicate in advance which aspects were of particular importance to him. However, the fact that this cooperation is not echoed in Pieter van Oort's diary entries in the sense of reports on the demands of the scientists and, for example, on the genesis of the drawings, is surprising.

Already the naming of this species—"chalcos" means copper in Greek—echoes the copper colouring; Müller seems to contradict this in his notes, since he speaks of „gelblichbraun mit stark stahlblauem Metallglanz“ (NNM001001113_036,

yellowish brown with strong steel-blue metallic lustre). Schlegel also seemingly wants to correct this discrepancy between name and actual colouring. Regarding the colour of the species, he writes in his handwritten notes: "Couleur moin cuivrinée à l'inférieur gris" (NNM001001387_007, less copper coloured, grey on the belly).

Schlegel, however, must be referring here to a different specimen than the one described by Müller in his notes below: in his notes he gives a length of 5" [= 13.6 cm]. Müller's specimen, on the other hand, with a snout-vent length of 6" 7 ½" [= 18.0 cm] was considerably larger. Müller's undated catalogue (NNM001001423_001) mentions two specimens, so that the two scholars may have used different specimens for their description.

MÜLLER'S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_035)

Neu=Guinea. (Lobo)

August 1828

Scincus chalconotus Müll. [probably misspelled, = *S. chalconotus*]

Euprepes n. philiae Bibr. [different hand, lead pencil, subsequently added]

Gz. Lg. [= Ganze Länge] von der Nasenspitze bis zum After 2'' 5 1/2''' [= 6.7 cm], Schz. [= Schwanz] 4'' 2 1/2''' [= 11.4 cm] Länge des Kopfes 7''' [= 1.6 cm] hinten breit 4 1/3''' [= 1.0 cm] hoch über der Stirn 3 1/2''' [= 0.8 cm] Kopflänglich Schnauze fast vierkantig mit abgerundeter Spitze; nur ein Wirbelschild [Frontale] welches vorne fast viereckig, hinten aber lanzettförmig ausläuft, 3 Hinterhauptschilder [parietals] von welchen das vorderste [frontal] am größten; am hintern Theil dreieckig, vorne aber stumpfspitzig ist, die beyden hintern Sc[uta, Schuppen, pl.]. occipitalia sind schmal, schräg liegend; 4 Scu[ta, Schuppen, pl.]. superciliaria [supraoculars] auf jeder Seite; 2. Stirnschilder [prefrontals]; 1 Schnauzen= [frontonasal] u. ein breites Rüßelschild [rostral]; Nasenlöcher klein rundlich. Schuppen mittelmäßig, die des Rückens, der äußern Seite der Extremitäten u. auf dem obern Theil der Basishälfte des Schzs. [=Schwanzes] mit dreÿ starken Kielen jeder Schuppe bedeckt; auf Kehle, Brust, u. allen untern Theilen des Körpers sind die rundlichen Schuppen glatt. Kopf u. alle obern Theile des

036

Körpers gelblichbraun mit stark stahlblauem Metallglanz; eine schmutzig gelbliche Linie zieht sich über die Supracilien [supraoculars] längst der Seite des Halses bis zu den Schultern. Kehle u. die ganze untere Seite des Leibes schmutzig grünlichgelb aber auch bey einem bräunlichen Anstrich olivengrünlich. — Scheint bey Lobo ziemlich selten zusein. —

Whole length from the tip of the nose to the cloaca 2'' 5 1/2''' [= 6.7 cm], tail 4'' 2 1/2''' [= 11.4 cm], length of the head 7''' [= 1.6 cm], width at the back 4 1/3''' [= 1.0 cm], height above the forehead 3 1/2''' [= 0.8 cm]. Head elongated, snout almost square with a rounded tip; only one frontal which is almost square in front, but lanceolate at the back, 3 parietals of which the foremost is the largest; triangular on the rear part, but blunt-pointed in front, the two rear Sc[uta, shields, pl.] occipitals are narrow, sloping; 4 scuta supraocularia on each side; 2. prefrontals; 1 frontonasal and one wide rostral. Nostrils small and rounded. Scales medium, those of the back, the outer side of the extremities, and on the upper part of the base half of the tail covered with three strong keels on each scale; on the throat, chest, and all lower parts of the body, the rounded scales are smooth. Head and all upper parts of the body yellowish-brown with a strong steel-blue metallic tinge; a dirty yellowish line runs over the supraoculars along the side of the neck to the shoulders. Throat and the whole lower side of the body dirty greenish-yellow but also with a brownish tinge of olive-green. —

Seems to be pretty rare at Lobo. —

Müller's terminology is not completely correct: in this description, his foremost parietal is the combination of what in some skinks is the two „hintere Wirbelsschilder“ (frontoparietals) fused to the middle „Hinterhauptschild“ (interparietal), creating a new much larger rhomboidal scale.

Apart from the rounded snout shape and the precisely reproduced head scaling with only one frontal in the drawing, Müller's information on the colouration is particularly striking. For sure it is much more difficult for the painter to reproduce a certain hue of “yellowish-brown with a strong steel-blue metallic tinge” than a certain number of scales. This, of course, must be validated on the original artwork; and it must not be forgotten that generally there is quite a spectrum of shades within one species.

Fused frontoparietal and interparietal scales, long toes, five fingers, single scales on the dorsal surface of the digits indicate that *S. chalconotus* belongs to the genus *Emoia*. Most probably we are dealing with a member of the long-limbed, long-tailed and elongate-headed *Emoia longicauda* group of Brown (1991): *Emoia kordoana* (Meyer 1874). In his first, though not particularly useful, description Meyer pointed out that besides the “deprimierten Vorderkopf” (Meyer 1874:133,

depressed snout) the colouration represents the diagnostic quality: “Olivenfarbig oben, jede Schuppenreihe von der anderen durch etwas Schwarz geschieden; an den Seiten bläulich, unten gelblich weiss” (p. 133, Olive-coloured above, each row of scales separated from the other by a little black; bluish on the sides, yellowish white below). Based on many more specimens from throughout the range, Brown (1991) provided a redescription.

This species is commonly greenish in life, but some individuals are brown, and it occurs around the entirety of New Guinea at lower altitudes. It can be found on surrounding islands as well, including the terra typica Mysore (Kordo), today's Biak. A comprehensive overview of the distribution of the species is given by Brown (1991:88–89). The identification of *Scincus chalconotus* as *Emoia kordoana* however does not agree with one feature of Müller's written description, that the dorsal scales are strongly tricarinate. This feature is also not apparent on van Oort's illustration of *Scincus chalconotus*, which shows only fine dark lines along the dorsal scales. *Emoia kordoana* is smooth-scaled, and also shows these fine dark lines, looking like keels. If the preserved specimens can be located in Leiden, it would be worthwhile

checking this to verify the identity of the species. And this is true for the number of body scales as well: as mentioned before we cannot be sure whether the drawing reaches accuracy to this degree.

***SCINCUS RABDOGNATHUS* MÜLL. (= *EUGONGYLUS RUFESCENS* (SHAW 1802))**

Much easier to resolve is *Scincus rabdoagnathus* which can definitely be identified with *Eugongylus rufescens*, using the present concept of this species (de Rooij 1915). The original description of the species by Shaw, of a species that resembles the common skink (now *Scincus scincus*) apart from its much larger size, may not refer to the same species, as he described the colour of his species as “a pale rufous brown, with a still paler stripe down the back, and along each side” (Shaw 1802:285). “Rufescens” and the English adjective “red”, deriving from the Old English “rudig”, own the same root, signifying the reddish hue. Especially with regard to younger animals, Shaw emphasizes that “the gilded tinge of the scales, and brown lateral stripe, are very conspicuous”. The sources Shaw indicates for his description are pre-Linnean: Seba’s *Lacerta maritima maxima* (Seba 1735:112; Tab. CV) and on the other hand Aldrovandus’ *Lacertus Cyprius Scincoides* (Aldrovandi 1637:660). Apparently, he did not have a specimen at his disposal. The question of how a name for skinks from Cyprus and from Arabia became associated with a skink from New Guinea and the taxonomic consequences of this are being clarified elsewhere (Shea, unpublished).

It was Duméril and Bibron who were able to draw on actual specimens in describing their “*Eumeces Oppelii*. Nobis.” (1839:656). As synonyms they refer to a younger and an adult specimen with the manuscript names “*Scincus fasciatus* et *Scincus annulatus*. Oppel, Mus. Par.” and “*Scincus elongatus*. Boié, Mus. de Leyde.” (the latter name also appeared in

print in Schlegel 1826a, b). In their description of colouration they highlight one feature, “quatre ou cinq bandes brunes qui se continuent en dessous sur la gorge, en formant des chevrons emboîtés les uns dans les autres” (Duméril and Bibron 1839:659; four or five brown stripes that continue down the throat, forming interlocking chevrons). This feature is depicted as well in the head study accompanying van Oort’s drawing (Fig. 13), which might have been added later. The pattern on the lips and throat are very distinctive, and characteristic of the species in this genus.

It seems to be an odd coincidence that Müller as well refers to two specimens they received: an old one and a young skink, although in this case the young specimen is mutilated. He does not differentiate the two individuals in his description, but refers to the “*fünfschwärzliche Querstreifen*” on the lips as well (NNM001001113_042, five blackish transverse stripes). The total length of about 35 cm clearly refers to the older specimen, especially as the younger one was missing its tail. However, it must be noted that very young individuals of this species are strongly banded with dark brown and cream markings, suggesting that Müller’s “young” specimen was not of hatchling size.

The form of the head is important for taxonomic assignments: Müller refers to the blunted muzzle, which finds its equivalent in Duméril and Bibron (1839:657) who describe the head as “aplatie” (flattened), ending in “un angle aigu dont le sommet ou le museau est assez arrondi” (an acute angle the tip or snout of which is rather rounded). The reason for Müller’s denomination, which derives from the Greek “rhábdos” (“stripe, streak”) and “-gnathos” (jaw), is found in the markings of the throat.

Müller’s information as to the head scalation can be verified directly on van Oort’s drawing which proves to be absolutely precise: the number and position of the scales are reproduced correctly and match the written description.

MÜLLER'S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_042)

(Baý Lobo) August
1828

Scincus rabdognathus Müll. –

Länge von der Nasenspitze bis zum After 4" 6 ½" [= 12.3 cm], Länge des Schwanzes 8" 5" [= 22.8 cm]; Kopf mittelmäßig mit abgestumpfter Schnauze; Länge des Kopfes von der Nasenspitze bis zum Tympanum 9 ½" [= 21.5 mm]; 3 Wirbelschilder [= frontal plus 2 frontoparietals], wovon das vorderste [= frontal] das größte ist, welches vorne benahe viereckig, hinten aber mit stumpfer Spitze ausläuft; 3 Hinterhauptschildchen [= parietals] wovon das mittelste [= interparietal] am kleinsten u. von ähnlicher Form des vorderen größten Wirbelschildes ist; 2 Stirnschilder [= prefrontals]; 1 Schnauzen- [= frontonasal] u. 1 Rüßelschild [= rostral] u. mehrere Zügelschilder [= frenals]; Augen mittelmäßig von 4–5 Augenbraunschilder [supraoculars] u. vielen kleinen Schildchen umgeben; Füße u. Zehen kurz u. untersetzt.

Alle Schuppen ganz glatt: auf dem Rücken breit beynahe sechseckig; auf dem Unterleib vorne rundlich. Alle obern Theile einfarbig dunkelbraun; Kehle, Unterleib u. die untere Seite des Schwanzes u. der Extremitäten schmutzig graulich gelb; über die Lippen ziehen sich fünf schwärzliche Querstreifen, von welchen die 3 mittelsten unter dem Kinne, als nach hinten zu gerichteten Winkel zusammenstoßen; auch bemerkt man an der Seite des Occiputs schwärzliche Schattierungen. – Scheint zu den selteneren Spezies zu gehören. Wir erhielten nur ein altes, u. ein junges verstümmeltes Exemplar. –

Length from the tip of the nose to the cloaca 4" 6 ½" [12.3 cm], length of the tail 8" 5" [22.8 cm]; medium head with blunted muzzle; length of the head from the tip of the nose to the tympanum 9 ½" [21.5 mm]; frontal plus 2 frontoparietals, of which the foremost [= frontal] is the largest, which ends in the front almost square, but in the back with a blunt point; 3 parietals of which the middle [=interparietal] is the smallest and of the same shape as the anterior largest frontal; 2 prefrontals; 1 frontonasal and 1 rostral and several frenals; eyes moderately surrounded by 4–5 supraoculars and many small shields; feet and toes long and stocky.

All scales completely smooth: on the back broad, nearly hexagonal; on the front of the abdomen roundish. All upper parts unichrome dark brown; throat, abdomen and lower side of tail and extremities dirty grayish yellow; five blackish transverse stripes run across the lips, of which the 3 middle ones join under the chin to a backwards facing angle; one notices blackish shades at the side of the occiput. —

Seems to be one of the rarer species. We only received an old and a young mutilated specimen. —

Müller considered this one of the rarer species; they recorded only two specimens, and only one is mentioned on the transport-list (NNM001001423).

This quite large skink occurs in a distribution which ranges from Ambon, Ceram, and the Aru Islands in the west, throughout low and medium altitudes in New Guinea, in the Admiralty Islands, the D'Entrecasteaux islands, the Louisiade Archipelago, the islands in Torres Strait and the extreme north tip of Cape York in Australia, with an outlying population on Rennell Island in the western Solomon Islands.

SCINCUS PLEURORABDUS MÜLL. (= ?EMOIA JAKATI (KOPSTEIN 1926))

As with *Scincus chalconotus*, *S. pleurorabds* belongs to the genus *Emoia*, which are characterised by the following features: fused frontoparietal and interparietal scales, long toes, five fingers, single scales on the dorsal surface of the digits. Most probably we are dealing with one of the 23 species in the *Emoia baudini* species group of Brown (1991), to which Schlegel points in his correction of the species name: [*Emoia*] *Baudini* Bibr. Smooth scales, stocky proportions and a blunt head speak in favour of this. Although only some of these species come into consideration as potentially occurring at Lobo

Bay (including species known from the Vogelkop, northwest of Lobo Bay, beyond Bomberai Peninsula, or on the southern side of the cordillera, to the east of Lobo Bay), all have similar size and proportions, and only precise scale counts (especially midbody, paravertebral and subdigital lamellae) and details of colour pattern distinguish many of them.

Whereas Duméril and Bibron emphasise the colouration "Dos bronzé; côtés de la tête, du cou et du tronc noirs, piquetés de blanc" (Duméril and Bibron 1839:653, Back bronzed; sides of head, neck and trunk black, speckled with white) with regard to *E. baudini*, traces of alternating pale and dark stripes in the dorsal colour pattern visible on the illustration point to *Emoia jakati* (Kopstein 1926) as the most likely species. In Kopstein's description the bronze colouration was mentioned as well: „Oberseite einfarbig bronzefarben mit leichtem Metallglanz“ (Kopstein 1926:94, top side plain bronze with light metallic sheen). Ein "hellgrüner Dorsalstreifen" (a light green dorsal stripe) turned up in Müller's notes as a "längst den Seiten des Rückens eine undeutliche hellere Linie" (along the sides of the back an indistinct lighter line). The name Müller attributed to this species picks up these features: pleura derives from Ancient Greek *pleuron*, meaning side or rib, and *rhábdos*, meaning stripe, streak.

As before it does not make much sense to try to rely on the precision of the drawing to determine the number of scales along

the back. In contrast to this the scalation of the head is much more accurate and can be taken as a one-to-one rendering.

The distribution of *E. jakati* ranges from the Solomons, Micronesia, and Marshalls to the entirety of lowland Papua New Guinea, although there are few records from the coastal

lowlands in southern Indonesian New Guinea (Brown 1991). The type locality, the vicinity of the Jakati River flowing into Bintuni Bay, separating the Vogelkop from Fakfak, is less than 200 km from Lobo Bay.

MÜLLER'S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_038)

N. Guinea (Lobo)

August 1828

Scincus pleurorabdis Müll. —[subsequently added, different hand, lead pencil: Baudinii Bibr.]

Länge des Körpers v. der Schnauzenspitze bis zum Schz. [= Schwanz] 1'' 11''' [= 5.2 cm] *Länge des Kopfes* 6''' [= 1.4 cm] *hinten breit*, 3 ½''' [= 0.8 cm], *hoch über der Stirn* 2 ⅓''' [= 0.5 cm] *Länge des Schz.* [= Schwanz] 2'' 5 ½''' [= 6.7 cm].

Kopf länglich oval, vom Hinterhaupt an abschüssig, fast vierkantig; nur ein Wirbelschild [frontal], welches vorne 4eckig, hinten aber lanzettförmig ausläuft; 3 Hinterhauptschilder [parietals] wovon das vordere fast recht winkelig viereckig ist; Augen mittelmäßig; Supracilien [supraoculars] etwas erhaben mit je 4–6 Schildchen bedeckt. Die kleinen Schuppen sind überall rundlich glatt; auf den Extremitäten [insert above the line] u. Den Seiten des Körpers doch etwas kleiner

_039

als den übrigen Theilen. – Kopf u. Rücken gelblichbraun; Schwanz u. Extremitäten wenig dunkler; längst den Seiten des Rückens eine undeutliche hellere Linie, u. unter dieser, vom hintern Augenwinkel bis zur Basis des Schwanzes (auch der Extremitäten) zeigt sich ein schwärzlicher Längsstreif; untere Seite des Körpers leicht gelblich. –

Scheint bey Lobo ziemlich selten zu sein

Length of body from the tip of the snout to the tail 1'' 11''' [= 5.2 cm], length of the head 6''' [= 1.4 cm], width at the back, 3 ½''' [= 0.8 cm], height above the forehead 2 ⅓''' [= 0.5 cm], length of the tail 2'' 5 ½''' [= 6.7 cm].

Head elongated oval, sloping from the occiput [= back of neck], almost square; only one frontal, which is square in front, but lanceolate in the back; 3 parietals of which the anterior one is almost square. Eyes medium; supraoculars somewhat raised, each covered with 4–6 shields. The little scales are round and smooth everywhere; on the extremities and sides of the body, however, somewhat smaller than on the other parts. – Head and back yellowish-brown; tail and extremities only little darker; along the sides of the back there is an indistinct, lighter line, and under this line, from the posterior corner of the eye to the base of the tail (and the extremities), there is a blackish longitudinal stripe; lower side of the body slightly yellowish. —

Seems to be pretty rare at Lobo.

Müller's verdict that the species seems to be "pretty rare at Lobo" stands in direct contrast with the numbers of specimens given in the transport lists: The "Catalog" (NNM001001423_001) lists 40 specimens, plus another 20 in the list of February 1831 (and 20 specimens of *S. pleurorabdotus* [sic] in the list "Verzending M" (NNM001001437_001)), all of which were caught in this region.

It is perfectly understandable that three similar species were put together on one sheet. Given the large number of similar species, a more detailed study of the specimens, if they can be located, would be desirable.

SCINCUS MACULOSUS MÜLL. (= SPHENOMORPHUS SIMUS (SAUVAGE 1879))

For the next two species we do not have any drawing. We assume that they were lost, since in all likelihood it was absolutely standard to produce a drawing in direct connection with the handwritten description; both together constituted a new description. And this must be presupposed especially for so far unknown species.

In the case of *Scincus maculosus*, therefore, we cannot compare text and illustration. But we may assume with some certainty that we are dealing with what is currently *Sphenomorphus simus* (Sauvage 1879), and was for a long while *Sphenomorphus stickeli* (Loveridge 1948). *Sphenomorphus simus* is a common small lowland species found in a variety of habitats, beach and woods, as Müller points out, which explains why the committee-members got 98 specimens in all in such a short time (33 specimens listed in NNM001001436_003 and the same number in NNM001001437_001, 65 specimens in the "Catalog", NNM001001423).

This species is distinguished by a very short, blunt snout—"Museau très-court", Sauvage in his first description (1879:54, Muzzle very short) and "*Schnauze sehr stumpf*", Müller in his notes (NNM001001113_040, see below) to *S. maculosus*—and has a large eye, with the supraocular region prominently bulging and a high number of supraocular scales (far more than the usual four supraoculars of most skinks). But both species have other features in common as well: *Sphenomorphus simus* is quite variable in colouration, but generally has a broken dark upper lateral zone or dorsolateral line of blotches, and dark spotting of various densities

on a yellowish-brown dorsum. The tail is also relatively short which corresponds to the measurements provided. The measurements and proportions of the head and body for *S. macu-*

losus and *Sp. simus* are very similar. The size of the scales, described as small by Müller, which results in a very high number of midbody scales, fits as well.

MÜLLER'S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_040)

Scincus maculosus Müll.

Lobo, July & August
1828

Dieser kleine Scincus ist [above the line] *sowohl längst dem Strande u. im hohen Wald von Lobo überall gemein.*

Gz. [= Ganze] *Lg.* [= Länge] *des Körpers v. dr. Nasenspitze bis zum After* 1" 8 ½" [= 4.6 cm] *Länge des Schzs.* [= Schwanzes] 2" [= 5.4 cm] *Kopfes* 5" [= 1.1 cm] *hinten breit* 3 ½" [= 0.8 cm] *hoch über der Stirn* 2 ½" [= 0.6 cm].

Kopf kurz, Schnauze sehr stumpf; dreß Wirbelschilder [Frontoparietalia] *wovon das vorderste* [Frontale] *vorne dreßeckig hinten aber sehr* [erased] *lanzettförmig ist; auch dreß Hinterhauptschilder* [Parietalia]; *2 Stirn=* [praefrontals] *1 breitliches Schnauzen=* [frontonasal] *u. 1 ähnlich geformtes Rüsselschild* [rostral]. *Supracilien* [supraoculars] *hoch gewölbt, durch 5–6 (8) Scuta* [scutum = Schuppe, pl.] *bedeckt. Alle Schuppen des Körpers klein, etwas breitlich u. Glatt, die Schuppen unter der Schnauze u. Auf der Spitzenhälfte oben, breiter als die auf dem übrigen Körper. Alle oberen Theile*

041
des Körpers gelblichbraun, schwarzfleckig marmoriert; längs der Seite des Rückens, vom hinteren Augenwinkel bis zur vorderen Hälfte des Schwanzes zieht sich ein aus Flecken zusammengesetzter schwarzer Streif, der oben durch eine mehr oder weniger unterbrochene [above the line] *gelbliche LängsLinie begrenzt wird; an der Seite des Körpers u. der außen Flächen der Extremitäten stehen noch viele unregelmäßige gelbliche Punkte u. Fleckchen, die eine marmorartige Schattierung machen; untere Theil des Körpers schmutzig röthlichgelb. – Gemein im Sande am Strand u. auch im Urwald.*

This little *Scincus* is common both on the beach and in the high forest of Lobo.

Whole length of the body from the tip of the nose to the cloaca 1" 8 ½" [= 4.6 cm], length of the tail 2" [= 5.4 cm], of the head 5" [= 1.1 cm], breadth at the back 3 ½" [= 0.8 cm], height above the forehead 2 ½" [= 0.6 cm].

Head short, snout very blunt; three frontals of which the foremost is triangular at the front but at the back very lanceolate; also three parietals; 2 prefrontals, 1 broad frontonasal and 1 similarly shaped rostral. Supraoculars highly arched and covered with 5–6 (8) shields. All the scales on the body small, somewhat broad and smooth, the scales under the snout and on top of the last half of the tail, broader than those on the rest of the body. All the upper parts of the body are yellowish-brown, mottled with black spots; along the side of the back, from the back corner of the eye to the front half of the tail, there is a black stripe composed of spots, which is bordered at the top by a more or less interrupted yellowish longitudinal line; on the side of the body and on the outer surfaces of the extremities there are many irregular yellowish dots and spots that produce a marble-like shade; lower part of the body dirty reddish yellow. —

Common in the sand on the beach and also in the jungle.

Again, we do not know why Müller chose this specific specimen for his measurements, but compared with Sauvage's information with regard to size we find that both are very similar: 10 cm total length with Müller and 12 cm on Sauvage's side. So, we are obviously dealing with a rather small species. Slightly larger, but quite slender, is the next species Müller described in his notes. And this species also lacks a drawing.

SCINCUS GRACILIS (IN PART = ORNITHUROSCINCUS NOCTUA (LESSON 1829))

Müller and his colleagues obtained eight specimens of this rather lanky skink—four in the region of Lobo Bay (NNM001001423) and four as well on "Poeloe Samao en Java" (NNM001001436_003, Semau near Timor and Java). Its name is derived from the Latin "gracilis" meaning gracile or slender. Since there had never been any skink given

the name *gracilis* before Müller wrote his notes, we assume that he just forgot to add his name as an indication that he believed himself to be the first describer when publication would follow later.

The physical appearance of the skink is highlighted by Müller after the measurements: "*Körper schlank; Schz.* [=Schwanz] *dünn sehr fein auslaufend* (NNM001001113_044, body slim; tail thin, very finely tapered) which explains the name assigned.

The question what species might be hidden behind Müller's denomination, which has not been used since, cannot be answered easily without a pictorial representation. Müller's attempt to differentiate a young one of "*quinquevirgati*, v. *H.* [= van Hasselt] *u. meinem Scincus arenarius*" (see below, *quinquevirgati* v. *H.* with my *S. arenarius*) is not entirely clear. *Scincus arenarius* today is *Cryptoblepharus schlegelianus* (Mertens 1928) from Timor and the adjacent Semau (Horner 2007), and was—according to his list

(NNM001001115)—drawn twice by van Oort (Fig. 11, reproduced from Brongersma (1942), illustrates one of these, likely to be the missing drawing #5 from NNM001000616, Fig. 12). The situation with regard to the first taxon is much more complicated. The self-explanatory Latin name (quinque = five, virgatus = striped) unfortunately is the only information about the species we have. No drawing and no description are available, and—at least online in its Bioportal—no specimens in the Naturalis-collection can be detected.

In his brief notes about Boie's "Erpetologie de Java" Schlegel lists this species and assigns it to Kuhl and van Hasselt: "*S. quinquevirgatus* K. et V. H. N. esp." (Schlegel 1826a: 236). This suggests that the species—like "*S. venustissimus* Reinw. N. esp." (see discussion under *Scincus biorchus*), which is also listed by Schlegel—had arrived in Leiden before the departure of the second commissie-group, and well before the shipment of 1831 (NNM001001436) so that it could be examined by Boie before 1825 for his manuscript *Erpetologie de Java*. It must be assumed that the commissie, at least in connection with the botanical garden, had a lot of relevant books at its disposal. We know of Boie's vast number of books and we must imply that the other members of the group had further books. This, of course, refers to the bibliographical situation of the group in general; with regard to the skink-species discussed here, it is obvious that Müller must have gained his knowledge from Boie himself either from a copy of his *Erpetologie de Java* after his death or directly from him. Since there was no published literature source for the names mentioned above, this is the only plausible way to explain how Müller identified them.

We suspect that the description of *S. gracilis*, which refers to alleged juveniles and a larger adult additional to the initial description, combines different species, which would be more than understandable since there is quite a range of relatively slender small skinks in this area, and the three different size groups mentioned by Müller may not all be from the same locality. The alleged "juveniles", if from Lobo Bay, are likely to be adults of what was until recently *Lipinia noctua* (Lesson 1829), recently transferred to the genus *Ornithuroscincus* (Slavenko et al. 2021). Müller's information concerning proportions (slender body, tail thin, finely tapered, head elongated) would fit perfectly with *Ornithuroscincus noctua*, as does the colouration described, with a narrowly separated pair of narrow dark stripes on either side of the vertebral line. Even though this species is quite variable in colouration geographi-

cally (Zweifel 1979), the dark upper lateral stripe generally shows a zig-zag margins that could be described as a dark "somewhat serpentine" line, as Müller described it.

Ornithuroscincus noctua is a widespread Pacific species with a distribution that extends from near Sulawesi across the north of New Guinea to the Solomons and Vanuatu and northward to Hawaii.

The other two descriptions for this species (the first and last below) are less obviously assignable to modern species, and identification is complicated by the fact that *Scincus gracilis* was reported as being collected at Lobo and also Samao and Java—no single species that could represent *Scincus gracilis* occurs in all three places. The rather "thin, very finely tapered" tail would exclude species of the genus *Sphenomorphus*, which normally have a thick tail. The relatively slender proportions suggest that it isn't one of the *Carlia* species, which have more stocky bodies. Müller did not give an indication as to the number of digits, which would have distinguished *Carlia* and *Lygisaurus* (which have four fingers) from all other New Guinea skinks. The most probable guess would be that it is one of the various small brown *Emoia* species of western New Guinea.

Obviously, Schlegel had similar doubts about the correct identification of this skink and added "Peronii Bibr" in lead pencil above the line. Most certainly he was thinking of *Carlia peronii* (Duméril and Bibron 1839), a species which the Commissie did collect on Timor. Van Oort had illustrated a specimen from Timor, identified as a juvenile *Scincus melanopogon*; Brongersma (1942) identified this painting as *C. spinauris* (see Figs. 11–12). There remains uncertainty about species limits in the *Carlia* on Timor, with possibly four species occurring there (Greer 1976, Zug 2010, Kaiser et al. 2011), however, there is agreement that the name *Carlia peronii* applies to a lowland species on Timor (the one most likely to have been collected by the Commissie), with *C. spinauris* (Smith 1927), if distinct, a high altitude species.

Carlia peronii is restricted to southwestern Timor, Semaue, and Wetar (Greer 1976:374), so it could potentially have been the basis for Müller's Semaue records of *Scincus gracilis*, but not the New Guinea or Java records.

So, in the end we cannot definitely identify all of the forms of Müller's species without analysis of the specimens—from the Lobo region as well as Samao and Java—in the Naturalis collection, if they can be located.

MÜLLER'S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_044/45)

Scincus gracilis [crossed out, above the line, different handwriting, lead pencil] [Carlia] Peronii Bibr

Neu=Guinea (Lobo)

August 1828

Lge [= Länge] *des Körpers von der Schnauzenspitze bis zum After* 1'' 8''' [= 4.5 cm]; *Schz.* [= Schwanz] 2'' 10''' [= 7.7 cm]; *Kopflang* 5''' [= 1.1 cm], *hinten breit* 3''' [= 0.7 cm], *hoch über der Stirn* 2''' [= 0.5 cm].

Körper schlank; *Schz.* [=Schwanz] *dünn sehr fein auslaufend*; *Kopflänglich*; *Schnauze fast vierkantig ist abgerundet*; *Schuppen glatt*. – 2 ganz ähnlich wie bei *venusti* geformte viereckige *Wirbelschilder* [frontals]; 2 schräg liegende *Hinterhauptschilder* [Parietalia]. –

Grundfarbe aller oberen Theile gelblichbraun; *längs der Seite des Rückens von den Supracilien* [supraoculars] *läuft ein hell grünlicher Streif, der am obern Theil durch eine feine schwarze Linie begränzt ist*; *alle Schuppen des Rückens u. Schz.* [= Schwanzes] *haben mehrere feine schwarze Längsstreifen wodurch solche ein gekielt Ansehen erhalten*; *äußere Seite der Extremitäten u. Seite des Körpers* [above the line] *mit vielen feinen schwärzlichen u. weißlichen* [blackened] *Punkten besetzt*; *alle unteren Theile* [blackened] *schmutzig gelblichweiß mit gleich der obern Seite des Körpers goldgrünliches Schimmer*. –

Mehrere [above the line] *junge Individuen einer Scincus Art scheinen mir dieser Spezies anzugehören. Ihre Größe und Färbung hat viel übereinstimmendes mit Scincus quinquevirgati, v. H.* [= van Hasselt] *u. meinem Scincus arenarius.*

Alle oberen Theile schmutzig gelblichweiß mit goldgrünem Schimmer; *längs des Rückens von den Supracilien* [supraoculars] *bis zur Basis des Schz.* [= Schwanzes] *zeigen sich 2 ganze* $\frac{3}{4}$ ''' [= 1.7 mm] *von einander entfernte schwärzlichen Streifen*; *u. längs des gz.* [ganzen] *dorsi* [= dorsum, Rücken] *eine feine ähnlich gefärbte etwas geschlängende Linie*; *die Seite des Körpers und Schz.* [= Schwanzes] *ist gleich der äußern Seite der Extremitäten schwärzlichbraun mit kleinen weißgelblichen Pünktchen meliert*; *die untere Seite des Körpers ist wie beim oben erwähnten Thier*. –

_045 [different hand writing]

— *Noch ein anderer größerer Scincus, den ich vor mir habe, möchte vielleicht ebenfalls nur das alte Thier sein von meinem Sc. gracilis. Seine Länge von der Schnauzenspitze bis zum After beträgt* 2'' 10 $\frac{1}{2}$ ''' [= 7.8 cm] *Schz.* [= Schwanz] 4'' 7''' [= 12.4 cm], *Kopflang* 7 $\frac{1}{2}$ ''' [= 1.7 cm], *hinten breit* 4 $\frac{3}{4}$ ''' [= 1.1 cm], *hoch über der Stirn* 3 $\frac{1}{2}$ ''' [= 0.8 cm]. –

Kopf länglich oval, Schnauze fast vierkantig, Schuppen des Körpers glatt. Alle oberen Theile auf dunkel olivengrauen Grunde Kupfer röthlich angelaufen, besonders stark auf dem Kopf und Hinterhals; die ganze hintere Seite des Körpers blaßbläulich mit schmutzig gelblichem Anstrich.—

Length of the body from the tip of the snout to the cloaca 1'' 8''' [= 4.5 cm]; tail 2'' 10''' [= 7.7 cm], head length 5''' [= 1.1 cm], width at the back 3''' [= 0.7 cm], height above the forehead 2''' [= 0.5 cm].

Body slim; tail thin, very finely tapered; head elongated; snout almost square and rounded; scales smooth. – 2 very similar shaped square frontoparietals as *S. venusti*; 2 oblique parietals.

Basic colour of all upper parts yellowish-brown; along the side of the back from the supraoculars runs a light greenish streak, bordered on the upper part by a fine black line; all scales of the back and tail have several fine black vertical stripes which provides it with a keeled appearance; outer side of the extremities and side of the body with many fine blackish and whitish points; all lower parts dirty yellowish-white with a golden-greenish tinge like the upper side of the body. –

Several young individuals of a *Scincus* species seem to me to belong to this species. Their size and colour have much in common with *Scincus quinquevirgati*, v. H. [= van Hasselt] and my *Scincus arenarius*.

All upper parts dirty yellowish-white with a golden-green tinge; along the back from the supraoculars to the base of the tail 2 whole blackish stripes show themselves with a distance to each other of $\frac{3}{4}$ ''' [= 1.7 mm]; along the entire back a fine similarly coloured somewhat serpentine line; the side of the body and tail is like the outer side of the extremities blackish-brown with small white-yellowish dots, the lower side of the body is as in the animal mentioned above. –

[different hand writing]

— Another larger *Scincus* that I have in front of me, could also be just an old individual of my *Scincus gracilis*. Its length from the tip of the snout to the cloaca is 2'' 10 $\frac{1}{2}$ ''' [= 7.8 cm]. Tail 4'' 7''' [= 12.4 cm], head length 7 $\frac{1}{2}$ ''' [= 1.7 cm], width at the back 4 $\frac{3}{4}$ ''' [= 1.1 cm], height above the forehead 3 $\frac{1}{2}$ ''' [= 0.8 cm]. –

Head elongated oval, snout almost square, scales of the body smooth. All upper parts tinged copper-reddish on a dark olive-gray ground, especially strong on the head and back of the neck; the whole back of the body pale bluish with a dirty yellowish tinge. –



Fig. 14. *Centroplicites nigricans* Müll. (Nieuw Guinea, (Lobo 1828)) as the caption reads on the bottom of the page, definitely by Müller's hand. Directly under the depicted "weird animal" we find the name given to the species by Duméril and Bibron, which is still valid today: *Tribolonotus novaeguineae* (NNM001000688_003).

***CENTROPLITES NIGRICANS* MÜLL. (= *TRIBOLONOTUS NOVAEGUINEAE* (SCHLEGEL 1834))**

The last species of skink presented here was not recognized as such by Müller. His handwritten notes are positioned way back between *Varanus* and *Hemidactylus*. Müller received a dozen of these previously unknown, spectacular reptiles (8 specimens in the list NNM001001423, 4 specimens in NNM001001436 and 4 as well in NNM001001437), one of the very few species that can vocalize, and called them *Centroplicites nigricans*, which derives from Greek "kentron" (Latinized centrum, = spike) and "hoplites" (= weapon carrier) and is combined to "Kentro-hoplites", meaning spike-armoured or spike-weapon carrier (Fig. 14).

Only five years after Schlegel's first description, Duméril and Bibron claimed the species for themselves: "Tribolono-

tus Novae-Guineae. Nobis.". They evidently deduced their justification for that from having placed "their" species in a different genus to the one previously used. In "Synomie" they refer directly to Schlegel's monography of 1834 and their description is based on a specimen "qui nous a été donné par le musée de Leyde" (Duméril & Bibron 1839:368, which was given to us by the Leiden Museum), which inevitably must be one of the 16 specimens Müller exported to the Netherlands. The total length given 19" 8''' amounts to 19.8 cm. Müller's data, with a total length of 18.9 cm, are quite comparable.

Most probably the caption underneath the picture was written by Schlegel; most certainly it was added after 1839, when Duméril and Bibron had published their description with exactly this name. Schlegel conscientiously indicates this with his reference: DB.

MÜLLER'S MANUSCRIPT IN TRANSCRIPTION AND ENGLISH TRANSLATION (NNM001001113_129)

Neu=Guinea. (Bay Lobo)

July & August 1828

Centroplicites nigricans Müll. [in the line below, of another hand: *Tribolonotus Novae-Guineae*, Erp. génér. T. 5. p. 366 – Pl. 56, i.a.b.]

Dieses sonderbare Thier ist an dunklen Stellen im Urwalde von Lobo nicht selten. Die Inländer nannten dieses Thier Bessabasa. —

Gz. Lg. [= Ganze Länge] v[on]. der Schnauzenspitze bis zum After 3" 6 1/2''' [= 9.6 cm], Schz. [= Schwanz] 3" 5''' [= 9.3 cm], Kopf lang 1" 1''' [= 2.9 cm], hinten breit 10''' [= 2.3 cm], hoch über der Stirn 6 1/2''' [= 1.5 cm], Hals 6 1/3''' [= 1.4 cm], Antibrach [= forearm 4 2/3''' [= 1.1 cm] Hand bis zum Ende der mittelsten, als längsten Zehen 5 1/2''' [= 1.2 cm]. Diese mittelste Zehe 3 2/3''' [= 0.8 cm], Elle. 7''' [= 1.6 cm], Tibia [= shin] 5 2/3''' [= 1.3 cm]. Iris schwärzlich – Kopf stark unterschritten, viel dicker als der Hals; an den Wangen aufgeblasen, doch gegen das Ende der Schnauze zu stark abschüßig; Stirn

This weird animal is not uncommon in dark places in the jungle of Lobo. The natives called this animal Bessabasa. —

Whole length from tip of snout to cloaca 3" 6 1/2''' [= 9.6 cm], tail 3" 5''' [= 9.3 cm], head long 1" 1''' [= 2.9 cm], wide at the back 10''' [= 2.3 cm], high above the forehead 6 1/2''' [= 1.5 cm], neck 6 1/3''' [= 1.4 cm], forearm 4 2/3''' [= 1.1 cm] hand to the end of the middle-most, as longest toes 5 1/2''' [= 1.2 cm]. This middle-most toe 3 2/3''' [= 0.8 cm], ulna 7''' [= 1.6 cm], tibia [= shin] 5 2/3''' [= 1.3 cm].

Iris blackish – head strongly undercut, much thicker than the neck; puffed out at the cheeks, but strongly sloping towards the end of the snout; forehead flat, a little concave; snout bluntly rounded; head on the whole quite massive, bony hard; eyes me-

flach, ein wenig concav; Schnauze stumpf abgerundet; Kopf im Ganzen durchaus mafiv knöchern hart; Augen mittelmäßig, die Supercilien bilden eine etwas vorspringende Leiste, welche sich längs der Seite des Hinterkopfes bis zu der scharfen Querkante des Occiputs fortsetzt; u. der noch ein hervorragend Stachel formt; zwischen diesen beyden Stachelborsten [= above the line] Hinterhauptleisten stehen auf gleiche Entfernung voneinander noch zwey ähnlich stachelartige Spitzen an der Querkante des Occiputs; u. endlich finden sich noch zwey kleinere Zinken an dem hintern Theil der Wangen; die Wangen selbst decken gleich dem Scheitel noch mehrere unregelmäßige Rinnen u. höcker= oder kielartige Erhabenheiten; Nasenlöcher nach Verhältniß sehr klein, rundlich, am obern Theil der Schnauzenspitze liegend. Trommelfell tief lang [= above the line], den ganzen Rücken u. ober Theil des Halses deckt eine lederartige Haut die feinkörnig ohargrimirt [= illegible] ist; über diese laufen längs dem Rücken [= crossed out] von der Mitte des Halses bis zur Hälfte des Schs. [= Schwanzes] 18-19 Querreihen großer Stacheln; [crossed out] auf dem Schz. [= Schwanz] werden diese Stacheln allmählich kleiner, so, daß sie gegen die Mitte desselben nur noch als [= crossed out] starke Kiele anzumerken sind; die äußeren Stachel längs des Rücken sind am größten u. an 2''' [= 4,5 mm] hoch; alle Stacheln s[in]d an der vorderen Seite rundlich [= crossed out] scharfschneidig, am hinteren

_0130

Theil rückwärts ausgeschweift, breitlich dreykantig. Schz. [= Schwanz] mit in Querreihen stehenden [= crossed out] kleine Schildern bedeckt; wovon jedes Schild mit einem Längskiel besetzt ist, die an der Spitzenhälfte der oberen Seite des Schs. [= Schwanzes] stärker als unten sind; der äußere Theil der hintern Extremitäten ist ebenfalls mit stachelartigen Höckern besetzt, die innere Seite des Schenkels aber gleich den Vorderfüßen mit hoch gekielten Schuppen bedeckt. —

Keine Schenkelöffnungen; 2 große Afterschilder [Fig. 15]; Auf den Seiten des Halses u. Leibes stehen einzeln zerstreut stachelartige [crossed out] Körner; die Schuppen der Kiehle klein, vorn rundlich u. stark carinirt [= keeled]; die der Brust ein wenig größer u. so allmählich in die doppelt so groß Schuppen [= above the line] des Bauches übergehend, wo sich in der Mitte des Bauches auch die Kiele langsam gänzlich verlieren; Zehen mit kleinen in Querreihen stehenden Schildchern bedeckt; u. kleinen gekrümmten Nägeln besetzt. Alle obern Theile des Thieres rußschwärzlich, fein schwarz Punktirt; auf den Zehen stehen röthliche Querstreifen; untere Seite des Körpers schmutzig gelblichbraun mit mehr oder weniger rußschwärzlichen Anstrich. —

dium, the supercilia forming a slightly protruding ridge, which continues along the side of the occiput to the sharp transverse edge of the occiput; and which also forms a protruding spine; between these two above the line occipital ridges, at the same distance from each other, there are two similarly spine-like spikes on the transverse edge of the occiput. Finally, there are two smaller prongs on the posterior part of the cheeks; the cheeks themselves, like the vertex, cover several irregular grooves and hump-like or keel-like elevations; nostrils proportionally very small, roundish, lying on the upper part of the tip of the snout. The entire back and upper part of the neck is covered by a leathery skin which is fine-grained; 18-19 transverse rows of large spines run along the back from the middle of the neck to half of the tail. On the tail these spines become gradually smaller, so that towards the middle of the tail they are only noticeable as strong keels; the outer spines along the dorsum are the largest and 2''' [= 4.5 mm] high; all spines are roundish on the anterior side and sharp-edged, on the posterior part they are

_0130

jagged backwards, broadly triangular. The tail is covered with small shields, arranged in transverse rows, each shield with a longitudinal keel, stronger at the tip of the upper side of the tail than below; the outer part of the hind extremities is also covered with spine-like humps, but the inner side of the thigh, like the forefeet, is covered with high keeled scales. —

No thigh openings; 2 large anal shields [Fig. 15]; on the sides of the neck and body there are single scattered spine-like grains, the scales of the keels are small, roundish in front and strongly keeled; those of the chest a little larger and gradually merging into the double-sized scales of the abdomen, in the middle of the abdomen the keels are slowly lost completely as well; the toes are covered with small transverse rows of scales and with small curved nails. All upper parts of the animal sooty-blackish, finely dotted with black spots; on the toes there are reddish transverse stripes; lower side of the body dirty yellowish-brown with more or less sooty-blackish coating. —

A syntype (RMNH 3599) is present in the collection of Naturalis (Leiden) with the information that it was collected by Müller and Macklot near Merkusoord. Unfortunately, this is the only specimen with this specification that can be traced online at the moment. Nevertheless, there are likely several others spread around various European collections, received from Leiden with the name *novaeguineae*, that may be type

specimens of this species (Bauer et al. 2003). Originally 16 specimens were sent to Leiden, so that some of these could be derived from the series collected by Müller: one specimen in London (BMNH 1946.8.20.84, mentioned by Gray, 1845: "New Guinea. Mus. Leyden"), Paris (MNHN 2805, the specimen used by D&B 1839 to create the genus *Tribolonus*) and Berlin (ZMB 4474, Neu Guinea; Leyden Museum).

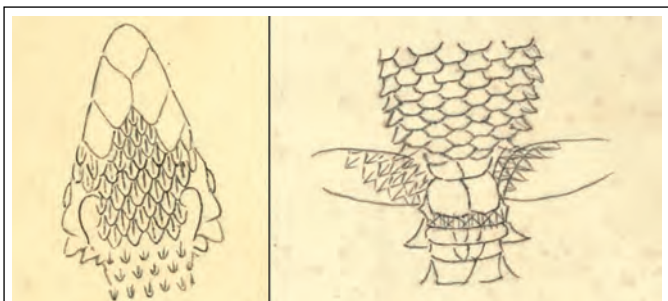


Fig. 15. As provided several times before in association with skink drawings, we find two detail drawings of parts of the skink's body mentioned in the description: The head scalation and the cloacal region with the “2 große Afterschilder”, indicated by Müller (NNM001000688_001, and: NNM001000688_003, = 2 large pre-cloacal shields).

There are also two specimens under the number RMNH 2599, which are considered syntypes in the Leiden collection, so with 3599, this makes three in that collection (Bauer et al., 2003, following a discussion in Brygoo (1985)).

De Rooij (1909) described a very similar species, *T. gracilis*, from northern New Guinea. Zweifel (1966) was unsure that *T. gracilis* was distinct, but because of limited sampling he did not formally synonymise them. However, the two species are genetically distinct, although the location of a geographic boundary between them remains unstudied (Rittmeyer and Austin 2019).

CONCLUDING REMARKS

As mentioned before, Müller claimed they had found 26 new reptile species on the west coast of New Guinea (Müller 1857:32). He obviously understood this as an achievement of the entire team and thus used the plural form. However, when it came to the first—albeit handwritten—descriptions he understandably switched to the singular and usually claimed the taxon exclusively for himself. In the documents of the Naturalis-collection, though, the names of the two scientists of the group are generally combined: Müller & Macklot.

A similar perspective is obtained from van Oort's list of drawings. In most cases a described specimen was drawn by him as well. Of the 76 species on the list 36 were claimed by Müller and 27 assigned to Boie. Most stunningly, Macklot's name does not turn up once. In official documents—entry books, for instance—it seems to have been added posthumously. In the quite hierarchically structured Commissie evidently Müller took over Boie's function and position, which not necessarily happened in one step: Although Boie was initially “Chef van de Commissie” (Chief of the Commission), Macklot took over as Chief with Boie's death. Müller, initially recruited as taxidermist, may only have taken over some of Boie's responsibilities as zoologist in the meantime, but then with Macklot's death on the return of the Commissie to Java, Müller as the last living scientist would have taken over as Chief of the Commission. Officially the leadership was only assigned to him in 1835.

Macklot, who even signed his “Verslag”, his report on New Guinea, as “De Chef der Natuurkundige Commissie, H. MACKLOT.” (Macklot 1830:182), in the only publication that appeared during the expedition, astonishingly did not appear as an author in other scientific reports. And this definitely had nothing to do with his notes being burnt shortly before his death in 1832. Macklot was “chef” on official occasions, for instance in meeting the governor in Buitenzorg, but seems to have restricted himself in scientific regards to questions of ethnologic and geographic contexts. For Müller, the son of a saddler and innkeeper, this is quite a formidable promotion.

Neither in the diaries of Arnoldus Johannes van Delden, the Dutch civil servant from Buitenzorg given responsibility for Fort du Bus, nor of Lieutenant Justin Modera, both officers on board of the Triton, does any relationship with the Natuurkundige Commissie play an important part (Mörzer Bruyns 2018:193–230, 299–323). Macklot is only referred to as analysing the soil for its adequacy to build a fort on it. The only exception is a report—together with Ovink from the crew—that Macklot presented to Captain Steenboom about the disastrous health situation on board. It is hard to comprehend but more than 60 of the crew (but none of the natives) were seriously sick, of which many—including the captain himself—died within a short period during or immediately after the time at Fort du Bus, part of a total of 110 men who died within a few years of landing there.

Just one brief passage deals with the collection activities of the Commissie (Mörzer Bruyns 2018:209/210), for which the focus seems to be that they shot “kroonvogels” [crowned pigeons, *Goura*] and “kangoeroe's” [“kangaroos”, presumably wallabies of the genera *Macropus* or *Dorcopsis*] (Mörzer Bruyns 2018:210/211) to improve the inadequate diet which was certainly a contributing factor to the health problems. Apart from that the reports do not allow any speculation on any relationship or cooperation, and the activities of the natural scientists are not central issues.

In this first part, we have dealt primarily with nine skink species, seven of which Müller had considered new species that he intended to describe scientifically and name himself: *Scincus typhlocephalus*, *Scincus erythrolaimus*, *Scincus chalconotus*, *Scincus rabdognathus*, *Scincus pleurorabdus*, *Scincus maculosus*, and *Centroplites nigricans*. Most probably this was the case for *S. gracilis* as well, although the author did not add his acronym. Only *S. oxycephalus* was already—at least in the sense of a name on the jar with the preserved specimen—attributed to Reinwardt.

And this in general is a similar situation to the species that will be discussed in the second part of the paper. Of the 12 remaining species to be discussed not less than 11 have the addition “Müller”: *Calotes megapogon*, *Psamophis chlorogastra*, *Elaps oculiferus*, *Dipsas lacrymans*, *Tropidonotus picturatus*, *Acontias polygrammicus*, *Varanus prasinus*, *Hemidactylus baliatus*, *Gonyodactylus Boiei*, *Platydictylus monarchis*, and *Dendrophis capistrata*. The only exception is *Acontias coecus* Cuv.

It was not our intention to present here an article that purports to deliver indisputable and eternally valid facts. It was much more our intention to open the door to a hitherto undiscovered treasure on an editorial basis and with the perspective of the history of science. Thousands of pages of scientific documents and drawings in the archives of Naturalis wait to be analysed.

We would like to close these lines with deep respect for the young natural scientists who explored Dutch East India from Sumatra to New Guinea between 1820 and 1837. Representing the many who died in the process, we name Heinrich Kuhl, along with the only survivor, Salomon Müller.

ACKNOWLEDGMENTS

As always, we wish to thank Wolfgang Böhme first of all cordially for his never-ceasing help, his general support, his many indispensable suggestions and his revision of this manuscript. Heinz-Peter Behr helped to decipher Schlegel's French notes, and HiKE Worth proved her exceptional abilities in deciphering difficult manuscripts. Pieter van Wingarden provided information about Pierre-Médard Diard.

To Karien Lahaise and Esther Dondorp (Naturalis, Leiden) we owe special thanks for their never-ceasing support and for providing high-resolution templates of the drawings and documents for printing.

Morris Flecks produced the map depicting the route the Commission-members took from Bogor to New Guinea and back.

We wish to thank Mark O'Shea for his constructive criticism and his helpful suggestions. We owe you all our heartfelt thanks.

REFERENCES

- Adler, K. 1989. Herpetologists of the Past. Pp. 5–141 in: K. Adler (Editor), *Contributions to the History of Herpetology*. Society for the Study of Amphibians and Reptiles, Oxford, Ohio.
- Adler, K. 2007. Herpetologists of the Past. Pp. 3–258 in: K. Adler (Editor), *Contributions to the History of Herpetology. Volume 2*. Society for the Study of Amphibians and Reptiles, St Louis, Missouri.
- Aldrovandi, U. 1637. *De Quadrupedib. Digitatis viviparis Libri Tres, et de Quadrupedib Digitatis Oviparis Libri Duo*. Marci Antonij Berniae, Bonon. [5], 718, [16] p.
- Barbour, T. 1911. New lizards and a new toad from the Dutch East Indies, with notes on other species. *Proceedings of the Biological Society of Washington*. 24:15–22.
- Bauer, A. M., G. Shea and R. Günther, R. 2003. An annotated catalogue of the types of scincid lizards (Reptilia, Squamata, Scincidae) in the collection of the Museum für Naturkunde der Humboldt-Universität zu Berlin (ZMB). *Mitteilungen aus dem Museum für Naturkunde in Berlin. Zoologische Reihe*. 79(2):253–321.
- Boie, H. 1826. H. Boie an Wagler, Buitenzorg auf Java, den 25. Aug. 1826. *Isis von Oken*. 20(8):cols. 724–726.
- Brongersma, L. D. 1942. Notes on scincid lizards. *Zoologische Mededelingen*. 24(1–2):125–152, pl. VI.
- Brown, W. 1991. Lizards of the genus *Emoia* (Scincidae) with observations on their evolution and biogeography. *Memoirs of the California Academy of Sciences*. (15):1–94.
- Brygoo, E. R. 1985. Les types de Scincides (Reptiles, Sauriens) du Museum national d'Histoire naturelle. Catalogue critique. *Bulletin du Museum national d'Histoire naturelle*. (4th series), 7(Section A) (supplement 3):1–126.
- Cocteau, J. T. 1832. Ablepharis. Ablepharis. Fitzinger. *Magasin de Zoologie*. 2:[6 unnumbered pages].
- Cocteau, J. T. 1836. *Études sur les Scincoïdes*. Paris. [iii], 9, 8, 8, 16 p., 4 pl.
- Cuvier, [G.] 1817. *Le Règne Animal, distribué d'après son organisation, pour servir de base à l'histoire naturelle des animaux et d'introduction à l'anatomie comparée. Tome II*. Deterville, Paris. xviii, 532 .p
- Daudin, F.-M. 1802. *Histoire naturelle, générale et particulière, des reptiles. Tome Quatrième*. F. Dufart, Paris. 397 p., pl. XLVI–LVIII..
- De Rooij, N. 1909. Reptiles (Lacertilia, Chelonia, Emydosauria). *Nova Guinea*. 13:133–153.
- De Rooij, N. 1915. *The reptiles of the Indo-Australian Archipelago. I. Lacertilia, Chelonia, Emydosauria*. E.J. Brill, Leiden. xiv, 384 p.
- De Vis, C. W. 1892. Zoology of British New Guinea. Part 1. Vertebrata. *Annals of the Queensland Museum*. 2:1–24.
- Doria, G. 1874. Enumerazione dei rettili raccolti dal Dott. O. Beccari in Amboina, alle Isole Aru ed alle Isole Kei durante gli Anni 1872–73. *Annali del Museo civico di storia naturale di Genova*. 6:325–357.
- Duméril, A. M. C. and G. Bibron 1839. *Erpétologie Générale ou Histoire Naturelle complète des Reptiles*. Tome Cinquième. Roret/Fain et Thunot, Paris. viii, 854 p.
- Earl, G. W. 1839. *Sailing Directions for the Arafura Sea; compiled from the narratives of Lieuts. Kolff and Modera*. Hydrographic Office, London. 15 p.
- Fitzinger, [L.] 1842. Der Muller'sche Keilscink. *Sphenomorphus mülleri*. (Fitzinger.) P. 140 + unnumbered plate preceding p. 139 in: F. Treitschke (Editor), *Naturhistorischer Bildersaal des Tierreiches. Dritter Band*. C. A. Hartleben, Pesth und Leipzig.
- Gassó, E., L. Stork, A. Weber, M. Ameryan and K. Wolstencroft. (Editors) 2020. *Natuurkundige Commissie Archives Online*. Leiden: Brill. [last accessed 16 March 2021].
- Gebhardt, L. 1964. *Die Ornithologen Mitteleuropas*. Brühlscher Verlag, Gießen. 403 p.
- Glässer-Trobisch, A. and D. Trobisch 2021. Begegnungen mit *Hydrosaurus* & Co. in der Wallacea Teil 4: Drachen auf der Insel der heiligen Aale – Ambon. *Sauria, Berlin*, 43(4):31–58.
- Gray, J. E. 1825. A synopsis of the genera of Reptiles and Amphibia, with a description of some new species. *Annals of Philosophy*. (2)10:193–217.
- Gray, J. E. 1845. *Catalogue of the specimens of lizards in the collection of the British Museum*. Edward Newman, London. xxviii, 289 p.
- Greer, A. E. 1970. The relationships of the skinks referred to the genus *Dasia*. *Breviora*. (348):1–30.
- Greer, A. E. 1976. Notes on the systematics of the genus *Carlia* (Lacertilia: Scincidae). II. *Carlia peroni* (Duméril and Bibron 1839). *Herpetologica*. 32(4):371–377.
- Guérin-Méneville, F. E. 1844. [“1829–1838”] Reptiles. Pp. 1–[24] in: *Iconographie du Règne Animal de G. Cuvier. Tome III. Texte explicatif*. J. B. Baillière, Paris.

- Günther, A. 1867. Additions to the knowledge of Australian reptiles and fishes. *Annals and Magazine of Natural History*. (3)20(115):45–57.
- Hardwicke, T. and J. E. Gray 1828. A synopsis of the species of saurian reptiles, collected in India by Major-General Hardwicke. *The Zoological Journal*. 3:213–229.
- Horner, P. 2007. Systematics of the snake-eyed skinks, *Cryptoblepharus* Wiegmann (Reptilia, Squamata, Scincidae) – an Australian-based review. *The Beagle, Records of the Museums and Art Galleries of the Northern Territory*. Supplement 3:21–198.
- Huizinga, F. 2004. *Merkusoor. Sources on the first establishment in New Guinea (1828–1836)*. The National Archives of the Republic of Indonesia, Jakarta.
- Jacobs, H. J. 2021. Frühe Beschreibungen und Darstellungen des Dunklen Tigerpythons, *Python bivittatus* Kuhl 1820. *Sekretär*. 21:3–36.
- Jacobs, H. J. and A. Koch 2021. On the discovery and scientific description of the Emerald Tree Monitor, *Varanus prasinus* (Schlegel, 1839). *Bibliotheca Herpetologica*. 15(7):61–76.
- Kaiser, H., V. Lopes Carvalho, J. Ceballos, P. Freed, S. Heacox, B. Lester, S. J. Richards, C. R. Trainor, C. Sanchez and M. O'Shea. 2011. The herpetofauna of Timor-Leste: a first report. *ZooKeys*. 109:19–86.
- Klaver, C. 2007. *Inseparable Friends in Life and Death: Heinrich Kuhl (1797–1821) and Johan Conrad van Hasselt (1797–1823), Students of Prof. Theo Van Swinderen*. Barkhuis, Groningen. ix, 105 p.
- Kopstein, P. F. 1926. Reptilien von den Molukken und den benachbarten Inseln. *Zoologische Mededelingen*. 1: 71–112.
- Latham, J. 1790. *Index Ornithologus, sive Systema Ornithologiae*. 2 Vols. Leigh and Sotheby, London.
- Lesson, R.-P. 1829. Reptiles, pl. 3 [Livraison 11]. In: *Histoire naturelle, Zoologie. Atlas*. In: L. I. Duperrey *Voyage autour du monde, Exécuté par Ordre du Roi, sur la Corvette de Sa Majesté, La Coquille, pendant les années 1822, 1823, 1824 et 1825*. Arthus Bertrand, Paris.
- Lesson, R.-P. 1830a. Reptiles, pl. 4 [Livraison 15]. In: *Histoire naturelle, Zoologie. Atlas*. In: L. I. Duperrey *Voyage autour du monde, Exécuté par Ordre du Roi, sur la Corvette de Sa Majesté, La Coquille, pendant les années 1822, 1823, 1824 et 1825*. Arthus Bertrand, Paris.
- Lesson, R.-P. 1830b. Description de quelques reptiles nouveaux ou peu connus. Pp. 34–65 in: [R.-P.] Lesson, (Editor), *Voyage autour du monde: Exécuté par Ordre du Roi, sur la Corvette de Sa Majesté, La Coquille, pendant les années 1822, 1823, 1824, et 1825*. *Zoologie, Tome Second. 1^{re} Partie*. [Livraison 25]. Arthus Bertrand, Paris..
- Lidth de Jeude, T. W. van 1911. Reptilien (Schlangen). *Nova Guinea*. 9:265–287.
- Linkem, C. W., R. M. Brown, C. D. Siler, B. J. Evans, C. C. Austin, D. T. Iskandar, A. C. Diesmos, J. Supriatna, N. Andayani and J. A. McGuire 2013. Stochastic faunal exchanges drive diversification in widespread Wallacean and Pacific island lizards (Squamata: Scincidae: *Lamprolepis smaragdina*). *Journal of Biogeography*. 40:507–520.
- Linnaeus, C. 1758. *Systema Naturae per regna tria naturae, secundum Classes, Ordines, Genera, Species, cum characteribus, differentiis, synonymis, locis. Editio Decima, Reformata. Tomus I. Laurentii Salvii, Holmiae*. 823,[1] p.
- Loveridge, A. 1948. New Guinean reptiles and amphibians in the Museum of Comparative Zoölogy and United States National Museum. *Bulletin of the Museum of Comparative Zoölogy at Harvard College*. 101(2):305–430.
- Macklot, H. C. 1830. Verslag van het land, de bewoners en voortbrengselen van eenige plaatsen op de kust van Nieuw Guinea. *Bijdragen tot de Natuurkundige Wetenschappen*. 5(1):142–182.
- Macleay, W. 1877. The lizards of the Chevert Expedition. *Proceedings of the Linnean Society of New South Wales*. 2(1):60–69.
- Mees, G. F. 1994. Vogelkundig onderzoek op Nieuw Guinea in 1828. Terugblik op de ornithologische resultaten van de reis van Zr. Ms. Korvet Triton naar de zuid-west kust van Nieuw-Guinea. *Zoologische Bijdragen*. 40:3–64.
- Merrem, B. 1820. *Versuch eines Systems der Amphibien. Tentamen Systematis Amphibiorum*. Johann Christian Krieger, Marburg. xv, 191 p., 1 pl.
- Mertens, R. 1928. Neue Inselerassen von *Cryptoblepharus boutonii* (Desjardin). *Zoologische Anzeiger*. 78:82–89.
- Mertens, R. 1930. Die Amphibien und Reptilien der Insel Bali Lombok, Sumbawa und Flores. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*. 42(3):117–344.
- Meyer, A. B. 1874. Eine Mittheilung von Herrn. Dr. Adolf Bernhard Meyer über die von ihm auf Neu-Guinea und den Inseln Jobi, Mysore und Mafoor im Jahre 1873 gesammelten Amphibien. *Monatsberichte der Königlichen Preussischen Akademie der Wissenschaften zu Berlin*. 1874:128–140.
- Modera, J. 1830. *Varhaal van eene Reize naar en langs de Zuid-westkust van Nieuw-Guinea dedaan in 1828, door Z. M. Corvet Triton en Z. M. Coloniale schoener de Iris*. Vincent Loosjes, Haarlem. xvi, 160 p.
- Mörzer Bruyns, W. F. J. 2018. *Met de Triton en de Iris naar Nieuw-Guinea*. Walburg Pers, Zutphen. 384 p.
- Müller, S. 1840–1841. Bijdragen tot de kennis van Nieuw-Guinea. Pp. 1–80 in: C. J. Temminck (Editor), *Verhandelingen over de natuurlijke Geschiedenis der Nederlandsche overzeesche Bezittingen. Vol. 1: Land- en Volkenkunde*. [Nos. 1–3]. A. Arnz & Co., Leiden.
- Müller, S. 1857. *Reizen en onderzoekingen in den Indischen archipel: gedaan op last der Nederlandsche Indische regering, tusschen de jaren 1828 en 1836, Band 2*. F. Muller, Amsterdam. 350 p.
- Müller, S. and H. Schlegel. 1845. Over de in den Indischen Archipel levende hagedisachtige Dieren van het Geslacht Monitor. Pp. 37–48 in: C. J. Temminck (Editor), *Verhandelingen over de natuurlijke Geschiedenis der Nederlandsche overzeesche Bezittingen, Vol. 3: Zoologie*. A. Arnz & Co., Leiden.
- O'Shea, M. and H. Kaiser 2018. Erroneous environs or aberrant activities? Reconciling unexpected collection localities for three New Guinea worm-eating snakes (*Toxicocalamus*, Serpentes, Elapidae) using historical accounts. *Herpetological Review*. 49(2):189–207.
- Rittmeyer, E. N. and C. C. Austin. 2017. Two new species of Crocodile Skinks (Squamata: Scincidae: *Tribolonotus*) from the Solomon Archipelago. *Zootaxa*. 4268(1):71–87.
- Rouschop, S. L. E. 2020. *The Price of Knowledge - Science, imperialism and the 1828 Triton expedition*. Masters thesis, Faculty of Science, Utrecht University, Utrecht. 60 p.
- Roux, J. 1910. Reptilien und Amphibien der Aru- und Kei-Inseln. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*. 33(3):211–247, pl. xiii–xiv.

- Roux, J. 1911. Elbert-Sunda-Expedition des Frankfurter Vereins für Geographie und Statistik. Reptilien und Amphibien. *Zoologische Jahrbücher. Abteilung für Systematik, Ökologie und Geographie der Tiere*. 30(5):495–508.
- Sauvage, H. E. 1879. Notice sur quelques reptiles nouveaux ou peu connus de la Nouvelle-Guinée. *Bulletin de la Société philomathique de Paris*. (7)3:47–61.
- Schlegel, H. 1826a. Notice sur l'Erpétologie de l'île de Java. *Bulletin des Sciences Naturelles et de Géologie* 9:233–240.
- Schlegel, H. 1826b. Erpetologische Nachrichten. *Isis von Oken*. 20(3):cols. 281–294.
- Schlegel, H. 1834. Monographie van het geslacht *Zonurus*. *Tijdschrift voor Natuurlijke Geschiedenis en Physiologie*. 1:203–221.
- Schlegel, H. 1837. *Abbildungen neuer oder unvollständig bekannter Amphibien, nach der Natur oder dem Leben entworfen und mit einem erläuternden Texte begleitet. Decade I*. Arnz & Co., Düsseldorf. 32 p.
- Schlegel, H. 1839. *Abbildungen neuer oder unvollständig bekannter Amphibien, nach der Natur oder dem Leben entworfen und mit einem erläuternden Texte begleitet. Decade II*. Arnz & Co., Düsseldorf, pp. 33–64.
- Schmidtler, J. F. 2013. Wiederentdeckung herpetologischer Beiträge von L. Fitzinger mit Beschreibungen neuer Taxa in F. Treitschkes (1842/1843) populärer naturgeschichte “naturhistorischer Bildersaal des Tierreiches” (Amphibia, Reptilia). *Herpetozoa*. 26(1/2):15–26.
- Seba, A. 1735. *Locupletissimi rerum naturalium thesauri accurata descriptio, et iconibus artificiosissimis expressis, per universam phycus historiam*. Janssonio-Waesbergios, J. Wetstenium & Gul. Smith, Amsterdam.
- Shaw, G. 1802. *General Zoology, or Systematic Natural History. Vol. 3, part 2*. G. Kearsley, Thomas Davison, London. pp. 313–615.
- Shea, G. M. and B. Miller 1995. A taxonomic revision of the *Cyclodomorphus branchialis* species group (Squamata: Scincidae). *Records of the Australian Museum*. 47(3):265–325.
- Shea, G. M. 2012. On the identity of the type species of *Sphenomorphus* (Squamata: Scincidae): *Lygosoma melanopogon* Duméril and Bibron 1839, with a note on a new scalation character of the pes in *Sphenomorphus*. *Zootaxa*. 3490:1–29.
- Slavenko, A., K. Tamar, O. J. S. Tallowin, F. Kraus, A. Allison, S. Carranza and S. Meiri. 2021. Revision of the montane New Guinean skink genus *Lobulia* (Squamata: Scincidae), with the description of four new genera and nine new species. *Zoological Journal of the Linnean Society*. Zlab052.
- Smith, M. A. 1927. Contribution to the herpetology of the Indo-Australian Region. *Proceedings of the Zoological Society of London*. 1:199–225.
- Temminck, C. J. 1835. Perruche Coquette. *Psittacus placensis*. Temm. Pl. 553, pp. [19–20] in: C. J. Temminck, and M. Laugier de Chartrouse (Editors). *Nouveau Recueil de Planches Coloriées d'Oiseaux. Vol. IV*. F. G. Levrault, Paris.
- Temminck, C. J. (Editor) 1839–1847. *Verhandelingen over de natuurlijke Geschiedenis der Nederlandsche Overzeesche Bezittingen. 3 Vols*. S. Luchtman and J. Luchtman, Leiden.
- van Steenis-Kruseman, M.J. 1950. Contributions to the history of botany and exploration in Malaysia. 1. Kollmann's collection of Javan plants. *Bulletin of the Botanic Gardens, Buitenzorg*. (3)18(4):463–466.
- Vinciguerra, D. 1892. Rettili e batraci di Engano. *Annali del Museo civico di storia naturale di Genova*. (2)12(32):517–526.
- Weber, A. 2012. *Hybrid ambitions: science, governance, and empire in the career of Caspar G. C. Reinwardt (1773–1854)*. Leiden University Press, Leiden. xi, 263 p.
- Weber, A. and S. van Zanen 2021a. *Kunstenaar op Java. De reisdagboeken en natuurtekeningen van Pieter van Oort (1825–1833)*. Walburgers, Zutphen. 479 p.
- Weber, A. and S. van Zanen 2021b. *Kunstenaar op Sumatra. De reisdagboeken en natuurtekeningen van Pieter van Oort (1833–1834)*. Walburgers, Zutphen. 288 p.
- Weber, M. 1891. Reptilia from the Malay Archipelago. I. Sauria, Crocodilidae, Chelonia. Pp. 159–177, pl. xiv in: M. Weber (Editor), *Zoologische Ergebnisse einer Reise in Niederländisch Ost-Indien*. Vol. 1. E.J. Brill, Leiden.
- Zug, G. R. 2010. An outlying *Carlia* population from Java and comments on species groups within the genus *Carlia* (Reptilia: Squamata: Scincidae). *Proceedings of the California Academy of Sciences*. (4)61(8):389–408.
- Zweifel, R. G. 1966. A new lizard of the genus *Tribolonotus* (Scincidae) from New Britain. *American Museum Novitates*. (2264):1–12.
- Zweifel, R. G. 1979. Variation in the scincid lizard *Lipinia noctua* and notes on other *Lipinia* from the New Guinea region. *American Museum Novitates*. (2676):1–21.

We suggest the following format for citing this article:

Jacobs, H. J. and Shea, G. M. 2022. Eight weeks in Lobo Bay. The Natuurkundige Commissie on New Guinea in 1828. I. *Scincus* and *Centropiles* (Scincidae). *Bibliotheca Herpetologica* 16(6):48–81.



The International Editions of Archie Carr's Books

C. Kenneth Dodd, Jr.

Florida Museum of Natural History, University of Florida,
Gainesville, Florida 32611 USA, terrapene600@gmail.com

Archie Fairly Carr, Jr. (16 June 1909–21 May 1987) loved his turtles and the peoples and cultures of Florida and the Caribbean. He spent his entire career, from undergraduate to Professor Emeritus, at the University of Florida (UF), where in 1937 he received the first Ph.D. in Biology awarded by UF. Early in his career he focused on general herpetology, then narrowed his research interests to turtles, and then narrowed it further to sea turtles, about which so little was known in the early to mid-20th Century. Archie also loved to travel, and by combining his travel and research, he could spend a career as few scientists are capable of today. Archie Carr's life is explored in detail in his biography (Davis 2007) and in that of his wife Marjorie (26 March 1915–10 October 1997), a major figure in the conservation movement in Florida (Macdonald 2014).

Archie liked amphibians and reptiles, but he was fascinated by all aspects of nature, including the people who populated the river floodplains, forests, and coasts where he investigated the ecology of poorly known species. Archie was as at home in the “jook joints,” taverns, and tiny remote villages of rural Florida and the Caribbean Edge as he was in the classroom or scientific conference (perhaps more so). He loved to tell stories and to hear the stories of the people with whom he interacted. He spoke fluent Spanish and could converse freely in the blended English-Spanish-French-Indigenous patois of the Caribbean. And he could write.

Archie was an outstanding writer, turning words and phrases into images and feelings to create an atmosphere of what it was like to be walking through a tropical forest or finding turtles on black sand beaches. Perhaps it is not surprising, then, that Archie majored in English rather than Biology as an undergraduate at UF. While his scientific papers used the rather bland language of science, he still managed to use his English prowess to make reading facts more interesting. He wrote popular articles for both young adults and adult naturalists, many of which were later republished (Carr 1994). In terms of writing, Archie is best known for his four natural history books, blending science, travel, and good writing to enthrall generations in the creatures and ecosystems around them. He received numerous awards for his research, conservation efforts, and writing, among them the Daniel Girard Elliott Medal from the National Academy of Sciences (1952), the O'Henry Memorial Award (1956) for his essay “The Black Beach” in *The Windward Road*, the John Burroughs Medal (American Museum of Natural

History), and the World Wildlife Fund Gold Medal (see Davis 2007 for a complete list). It perhaps is not surprising, then, that many of Archie Carr's books have been published internationally. This is particularly true of the three volumes published in the Time-Life series in the 1960–1970s. In this paper, I present the first compilation of Archie Carr's books published internationally and in non-English text.

NATURAL HISTORY

Archie Carr published four books that may be categorized as natural history: *High Jungles and Low* (1953, second edition 1992), *The Windward Road* (1956, reprinted 1979, 1980 [paperback], 2013), *Ulendo* (1964, reprinted 1993) and *So Excellent A Fische* (1967, 1973 [paperback], revised 1984). A fifth natural history book is a compilation of Archie's Florida natural history essays (*A Naturalist in Florida. A Celebration of Eden*, 1994) that was published posthumously. There are no international editions of *High Jungles and Low* or *A Naturalist in Florida*. Table 1 provides a list of the international editions of the other books.

The Windward Road is the most widely published title of Carr's non-US editions, particularly in the former USSR and Soviet Bloc countries where international copyright agreements were not followed until 1973¹. However, there is correspondence in the Archie Carr papers in the Smathers Library, University of Florida, concerning the republication of the Romanian and Russian editions. According to Tom Carr (pers. comm.), Archie's son, Archie never received royalties from the Russian editions, and there is nothing in the Carr papers as to whether he did or did not receive royalties from translations into other languages.

The covers and formats of the internationally published natural history books vary considerably from the originals as published in the United States (Figs. 1–11). The Soviet Bloc books were published only in paperback formats, and photographs and illustrations often were not included. The cover of the Lithuanian edition of *The Windward Road* even depicts a tortoise rather than a sea turtle (Fig. 4).

FAUNA AND FLORA

In the library of the University of Hong Kong Institute of Education, there is a 64-page booklet in Chinese attributed to Archie Carr ostensibly as part of a series entitled “Chinese

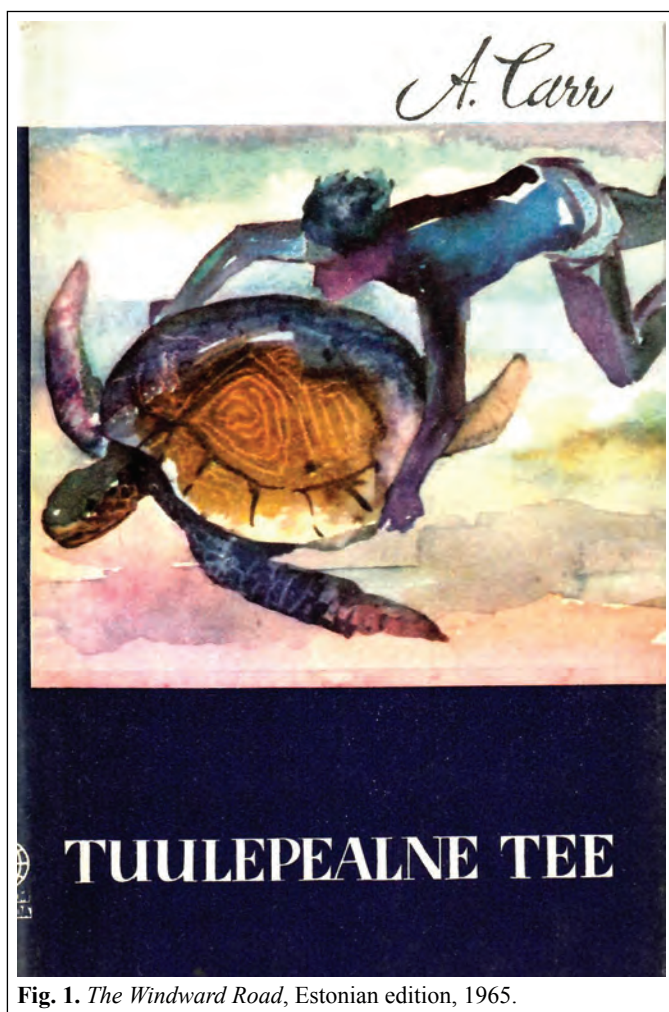


Fig. 1. *The Windward Road*, Estonian edition, 1965.

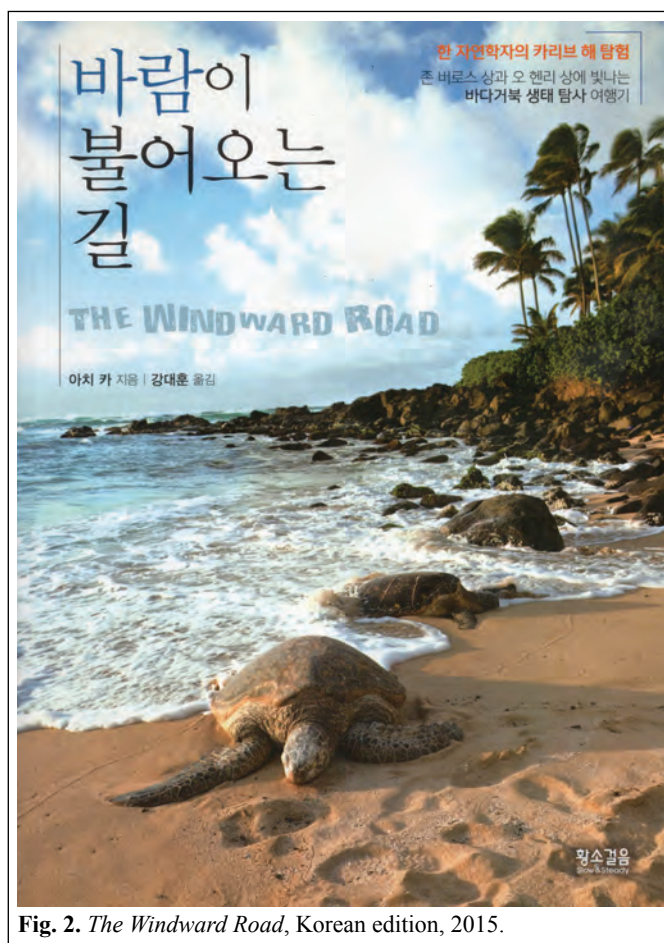


Fig. 2. *The Windward Road*, Korean edition, 2015.

Translations of Contemporary Scientific Masterpieces.” The title of the booklet may be translated as “Fauna and Flora” or “Fauna and Plant Communities,” depending upon the translator, and was about classifying animals and plants, and biodiversity. The booklet was printed by Daorong Wang, Taipei, Taiwan, and distributed by Guangwen Publishing House. Apparently, there were two editions, one in 1966 and the second (Fig. 12) in 1971. The booklet consists of 30 short sections on plant and animal classification, questions about animals (e.g., Are animals blind when they are born?), and types of habitats (e.g., Grasslands). There are numerous black and white sketches of animals, and some black and white photographs, mostly of habitats.

The history of this publication is somewhat obscure, and I have been unable to find an English version exactly as published in Chinese². In September 1956, Carr was contacted by Ellen McLoughlin of the Grolier Society, publishers of *The Book of Knowledge Annual* and *The Book of Popular Science* (both young adult encyclopedias), and asked to contribute three original articles for future

editions (Fig. 13). Carr agreed and submitted manuscripts covering the three topics in February 1957 and was paid \$297.50 (Fig. 14). In Carr’s early curricula vitae, he cites a composite article as being in press to be published in the 1959 edition of *The Book of Knowledge*. However, the latter two articles were not published by Grolier in either of the two encyclopedia series. The first article, “How Living Things are Classified,” corresponds with the first article mentioned in the 1956 letter from Ellen McLoughlin and was published in an edited version under the title “Labels for Living Things” in the 1958 edition of *The Book of Knowledge* (Carr 1958). An article covering the same topics as the additional two Carr manuscripts did appear as an unattributed article in Grolier’s *The Book of Popular Science* series from 1958 (Anonymous 1958), but did not use Carr’s manuscripts. Carr’s latter two articles (“The Great Groups of Animals,” and “The Great Groups of Plants”), however, match the text of the Chinese booklet. Exactly how the manuscript covering these topics made its way to a Taipei publisher is unknown, as there is no record in the Archie Carr papers in the Smathers Library

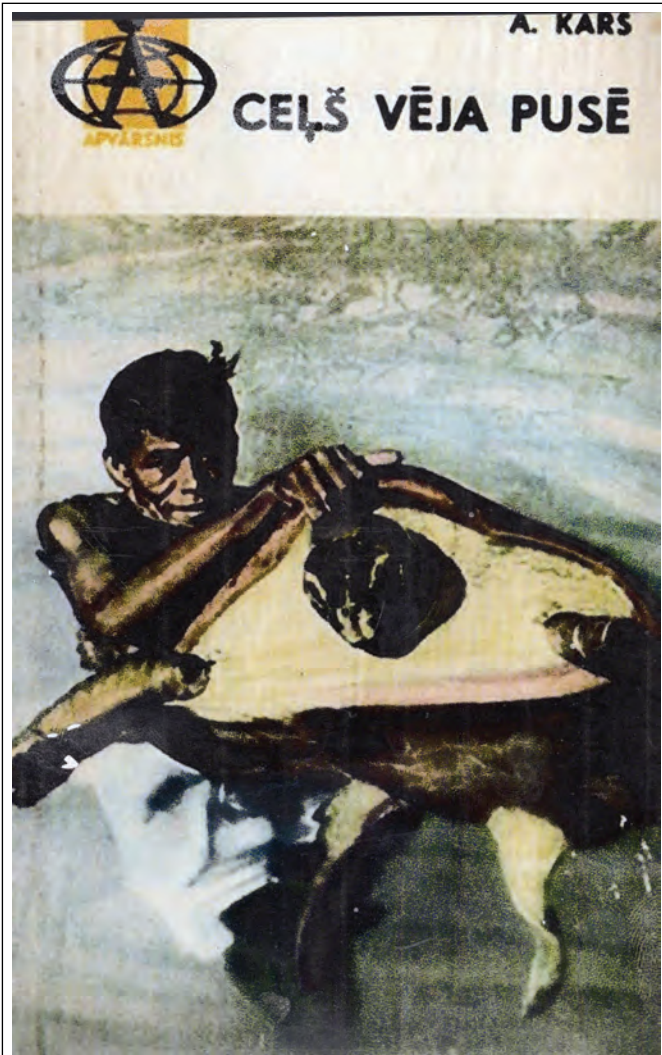


Fig. 3. *The Windward Road*. Latvian edition, 1979.

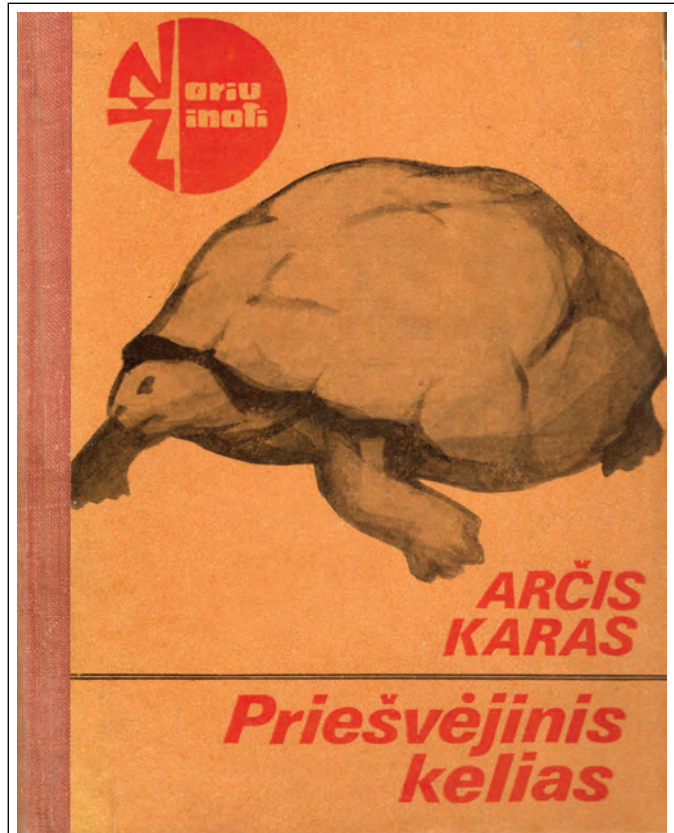


Fig. 4. *The Windward Road*, Lithuanian edition, 1978.

at the University of Florida^{3,4}. However, De Oliveira (2018) noted that *The Book of Knowledge* apparently was published in Chinese, based on newspaper advertisements, although he was unable to locate any extant copies. In any case, the result was a short booklet that was likely only distributed in Taiwan.

THE TIME-LIFE SERIES

Time-Life was founded in 1961 as the book marketing division of Time, Inc. It took its name from Time's cornerstone magazines, Time and Life, two of the most popular magazines of the era, but remained independent from both. There were more than 150 book series produced under the auspices of Time-Life (Legg, 2003) of which two involved Archie Carr: The Time-Life Nature Library (25 volumes) and The American Wilderness (27 volumes), which was marketed internationally as The World's Wild Places. Carr authored two books in The Nature Library series (*The Reptiles* [1963, updated 1977]; *The Land and Wildlife of Africa* [1964, revised 1967, 1971]) and one in The American

Wilderness/The World's Wild Places series (*The Everglades* [1973]).

Time-Life books were published simultaneously in the United States and Canada, with international editions published several years later. International editions were published under the auspices of Time-Life International in Amsterdam and Hong Kong, although many of the editions were outsourced to local publishers (Table 1). A few non-English titles were also published in the United States (Table 1). The text and cover of these titles are identical, regardless of language, despite the many multi-year releases. A few titles were changed in international editions, for example, the Dutch edition of *The Everglades* uses a translation as *Florida's Marshes*, rather than retaining the Everglades as a proper name. *The Reptiles* is the only title published internationally in Time-Life's Young Readers Library series, and that was in Hebrew.

I was unable to examine copies of every edition of the books in the Time-Life series as listed in Table 1. Therefore, in order to be listed, the dates had to be corroborated from

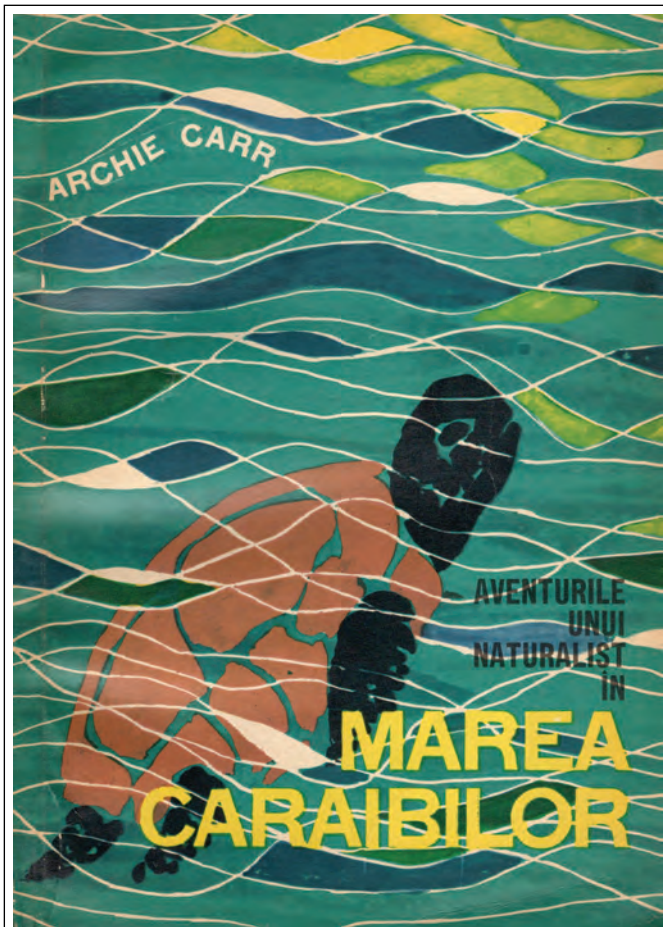


Fig. 5. *The Windward Road*, Romanian edition, 1964.

multiple sources, such as WorldCat (<https://www.worldcat.org/>), other library listings, university holdings, book dealer lists, bookstores, eBay, or private libraries. Illustrations showing the publication information were particularly helpful in this regard.

CONCLUSION

Herpetologists today recognize Archie Carr as an outstanding ecologist and conservation biologist, and as the founder of modern sea turtle research. With the publication of books internationally, Carr extended his influence well beyond North and Central America to stimulate wonder and share knowledge of the world of reptiles and amphibians and their habits and habitats. Archie's books introduced natural history, adventure, local peoples and cultures, and science, to countless students and naturalists about places far removed from their everyday life. Are these editions the only ones ever published? Although I searched extensively, it seems likely there may be other editions of Archie's books that I

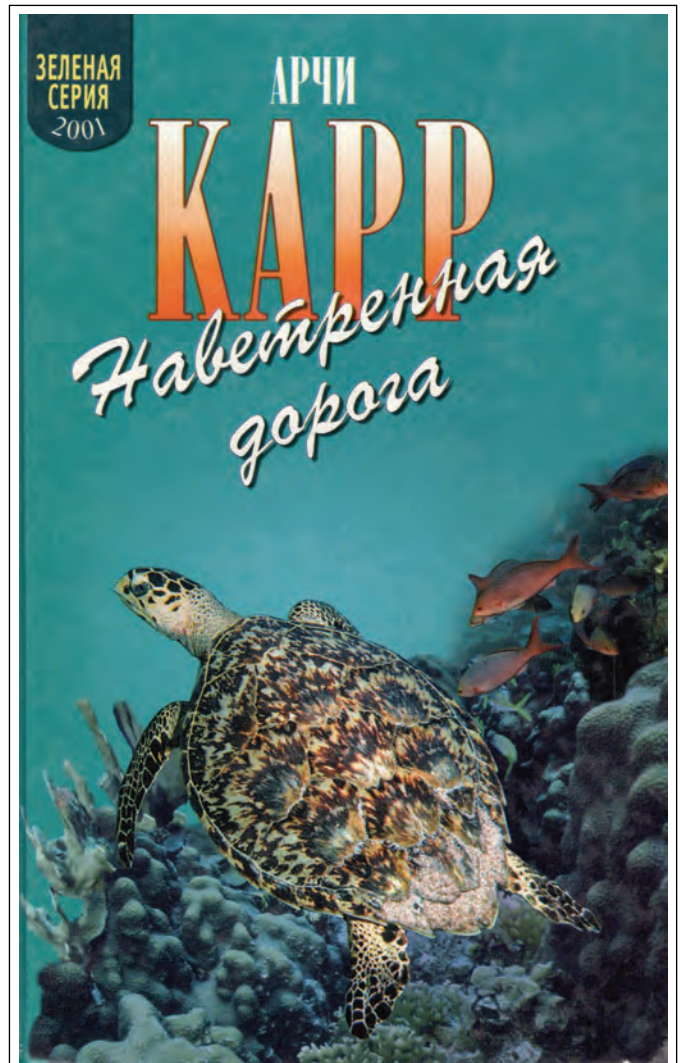


Fig. 6. *The Windward Road*, Russian edition, 1971.

have been unable to find—in Greek, Polish, Afrikaans, Bengali, and Arabic. I am keenly interested in finding other editions. Moreover, why was *High Jungles and Low*, Archie's recounting of his nearly 5 years in Honduras, never released in Spanish?

ACKNOWLEDGEMENTS

Many individuals helped track down Carr's international titles, and I thank them for searching their libraries or offering tidbits of information: Gary Ades, George Balazs, Aaron Bauer, Dan Cogalniceanu, Sergius Kuzmin, Anthony Lau, Yurii Kornilev, Leigh Martin, and Akira Mori. A special thanks to Anthony Lau, Jerry Song, Aiko Leong, and Maximillian Maurer for translations of the Chinese text. I thank Steve Hersh (Smathers Library, University of Florida) for access to the Archie Carr papers, and Milo Brooks (University Press of Florida) for an update on current publication rights. Sean Otani and John Carr improved the manuscript considerably.

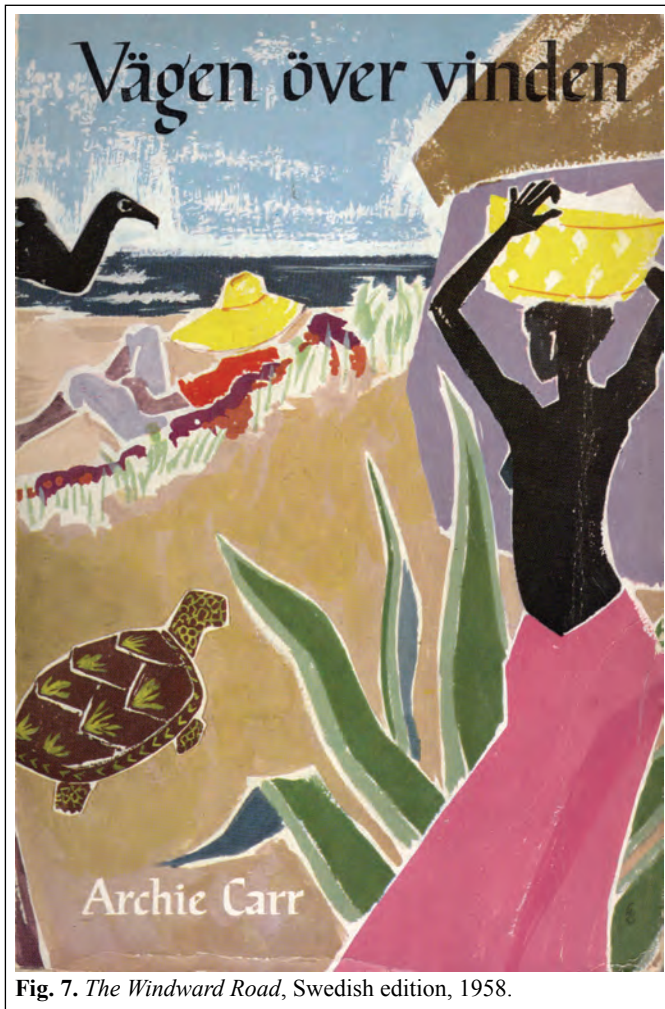


Fig. 7. *The Windward Road*, Swedish edition, 1958.

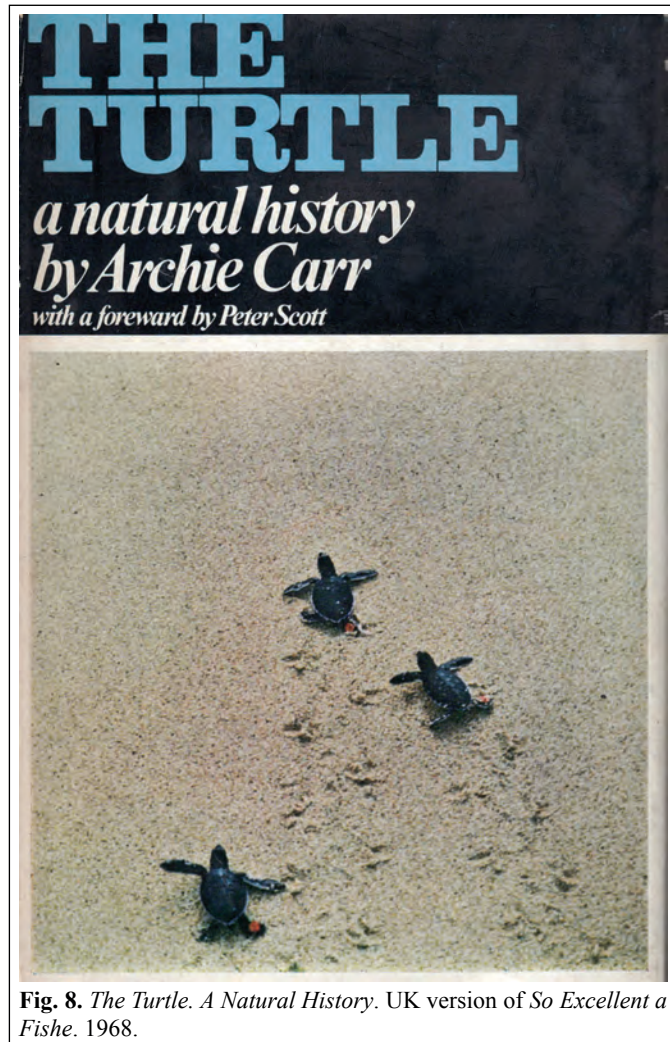


Fig. 8. *The Turtle. A Natural History*. UK version of *So Excellent a Fishe*. 1968.

Table 1. The international editions of Archie Carr's books. The original publication date is in parentheses next to the title. Titles are in the brackets in quotation marks as they appear on the cover, with the publisher and place of publication following. Many, but not all, European editions in the Time-Life series were published, at least initially, through Time-Life International, Amsterdam.

The Windward Road (1956)

- Estonian—1965 ["Tuulepealne tee: looduseuurija seiklused Kariibi mere kaugetel randadel," Eesti Raamat, Tallinn]
- Korean—2015 [Hwangsogeo-eum]
- Latvian—1979 ["Ceļš vēja pusē: dabaszinātnieka piedzīvojumi vientuļos Karību jūras krastos," Zinātne, Riga]
- Lithuanian—1978 ["Priešvejinis Kelias," Vaga, Vilnius]
- Romanian—1964 ["Aventurile Unui Naturalist în Marea Caraibilor," Editura Științifică, Bucharest]
- Russian—1961 [Geografiz publ., Moscow], 2001 [Armada-press, Moscow]
- Swedish—1958 ["Vägen över vinden," Tinden, Stockholm; Söderström, Helsingfors, Finland]
- UK—1957 [Robert Hale, London]

Fauna and Flora (1958)

- Chinese—"Fauna and Plant Communities" or "Fauna and Flora." Daorong Wang, Taipei, Taiwan. Distributed by Guangwen Publishing House. 1966, second edition 1971]

The Reptiles (1963, updated 1977) Time Life Nature Library

- Chinese—1982, 1987, 1989, 1992
- Danish—1968 [Lademann]
- Dutch—1965 [N.V. Het Parool, Amsterdam]
- English—1968 [Time-Life International, Amsterdam], 1985 [published in Hong Kong]
- Finnish—1968 [Otava/Life, Helsinki]
- French—1963, 1964, 1969 [published in the US], 1977
- German—1964, 1968, 1969 [Time-Life International, published in the US and Amsterdam], 1973, 1977
- Indonesian—1980 [Tira Pustaka, Jakarta]
- Italian—1964 [Arnoldo Mondadori, Milan]
- Japanese—1969, 1979 [Taimurairufubukusu, Tokyo]
- Korean—1979 [Han'guk Ilbo T'aim-Laip'ū, Seoul]
- Portuguese—1971 [Livreria José Olympio, Rio de Janeiro]
- Russian—1975 [Mir Publishers, Moscow]
- Spanish—1964 [Offset Multicolor S.A., Mexico], 1968 [Time-Life International, Amsterdam], 1969, 1971 [Editado por Offset Multicolor, Mexico], 1972, 1978 [Ediciones Culturales]

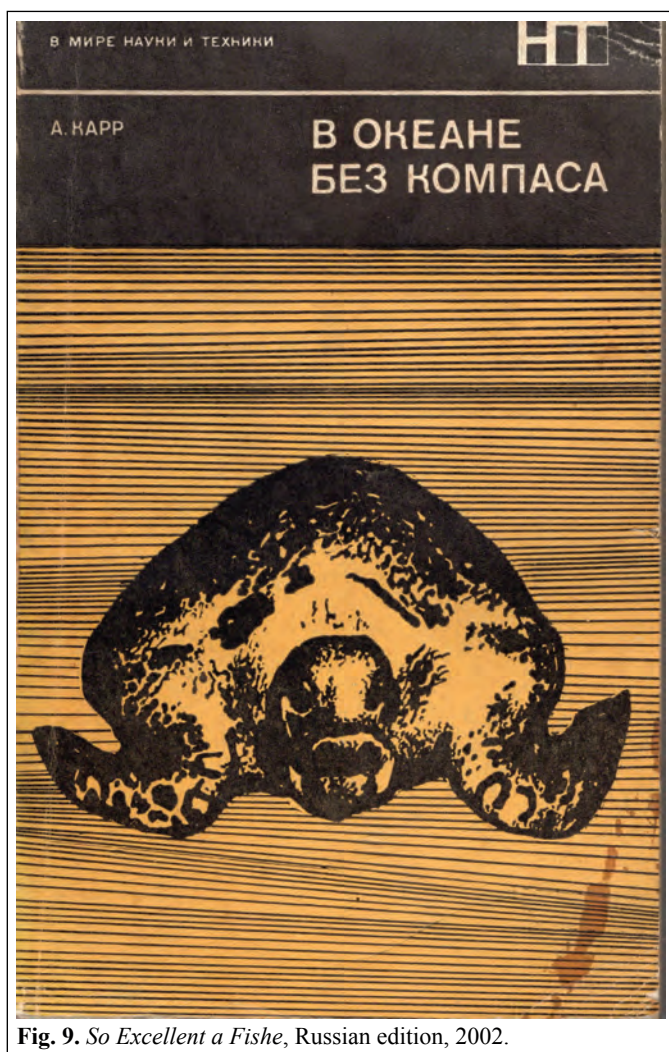


Fig. 9. *So Excellent a Fische*, Russian edition, 2002.

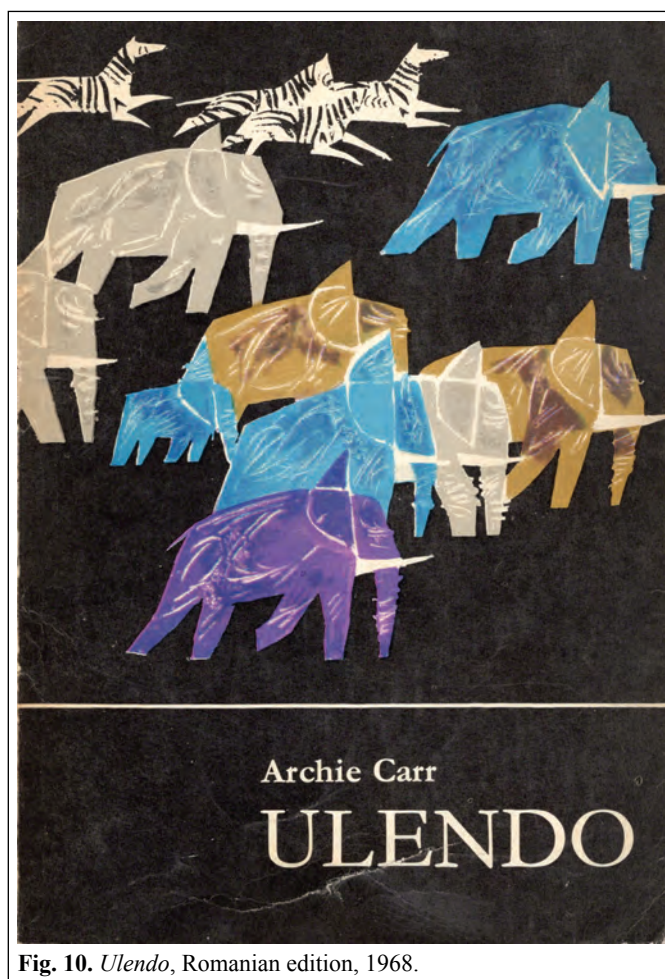


Fig. 10. *Ulendo*, Romanian edition, 1968.

Internacionales, Mexico], 1979 [published in the US], 1985 [ECI, second edition, Mexico], 2008 [Eds. Culturales Internacionales, Mexico]
Swedish—1963, 1971 [Bokklubben Svalan/Bonnier, Stockholm]

The Reptiles—Young Readers Library Series (1968, 1970, 1972)
Hebrew—1972 [Sifriyat Ma'ariv, Tel Aviv]

Ulendo (1964)

Romanian—1968 [“Ulendo: călătoriile unui naturalist prin Africa și în afara ei,” Editura Științifică, Bucharest]
UK—1965 [Heinemann, London], 1966 [Scientific Book Club, London]

The Land and Wildlife of Africa (1964, revised 1967, 1971) Time Life Nature Library

Czech—1971 [Artia, Prague]
Danish—1965, 1967 [Forlaget Union, Copenhagen]
Dutch—1965 [Het Parool, Amsterdam]

English—1984 [Time-Life International, Hong Kong]
French—1964, 1965 [published in US], 1968, 1970, 1973
German—1965, 1968, 1975 [Reinbek (bei Hamburg) Rowohlt]
Indonesian—1978 [Tira Pustaka, Jakarta]
Italian—1966 [Arnoldo Mondadori, Milan]
Japanese—1966, 1971, 1980 [Taimuraifu intānashonaru, Tokyo]
Korean—1979 [Han'guk Ilbo T'aim-Laip'ū, Seoul]
Spanish—1972, 2002, 2008 [Ediciones Culturales Internacionales, Mexico]
Swedish—1969 [Bra Böcker, Högabäck]

So Excellent a Fische (1967, revised 1984)

Russian—1971, 2002 [“V okeane bez kompasa” -- “In Ocean Without Compass,” Mir Publishers, Moscow]
UK—1968 [“The Turtle, A Natural History,” Cassell, London]

The Everglades (1973) Time Life's The World's Wild Places

Chinese—1984 [Shi dai gong si, Niuyue], 1999
Dutch—1975, 1990 [“Florida's Moerasgebieden”]

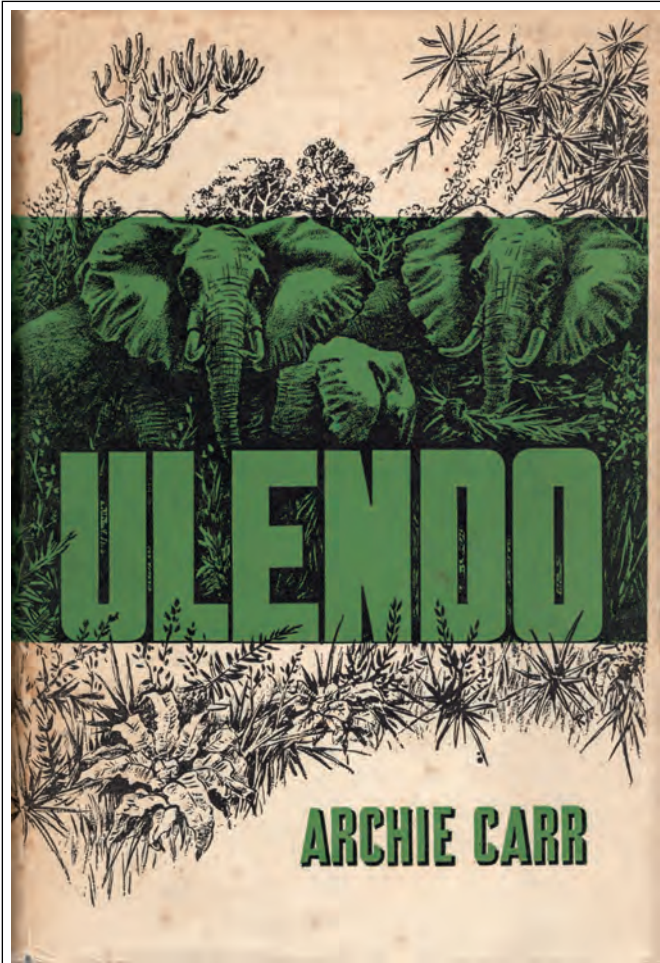


Fig. 11. *Ulendo*, UK edition, 1965.

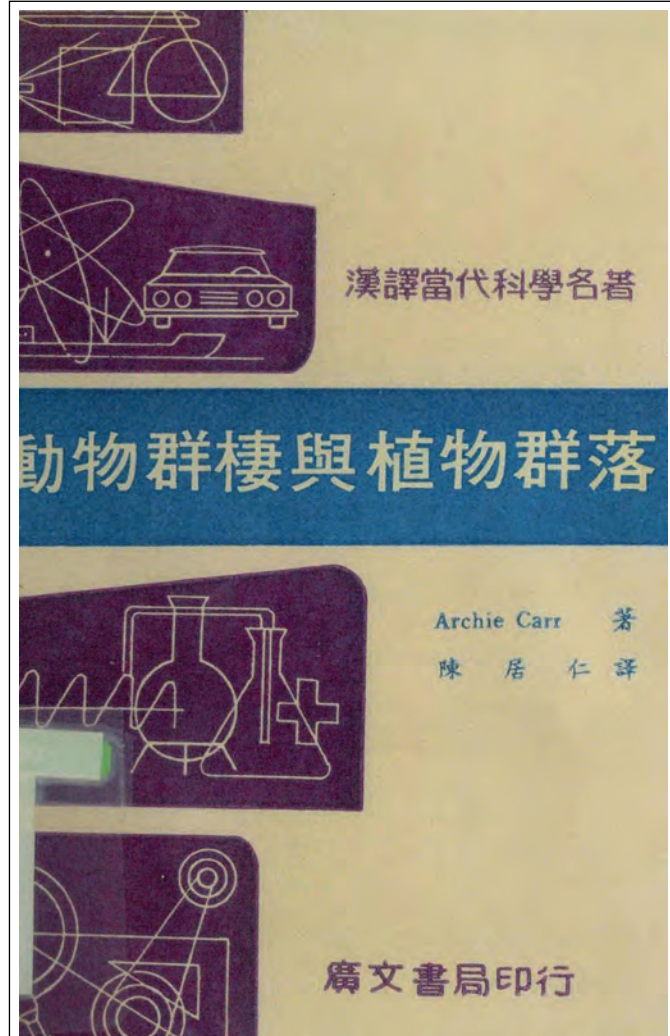


Fig. 12. *Fauna and Flora*, Chinese second edition, 1971.

- Finnish—1982 [“Floridan luhtasuot,” Porvoo, Helsinki; WSOY, Juva]
 French—1975, 1978, 1982, 1985, 1987 [“Les Marais De La Floride”]
 German—1975 [“Die Everglades von Florida,” Reinbek (bei Hamburg) Rowohlt], 1989
 Italian—1976, 1978, 1982, 1984, 1987 [“Le Everglades in Florida,” Mondadori Time Lif Milan]
 Japanese—1976 [Taimuraifubukkusu, Tokyo]
 Spanish—1975, 1980, 1982 [Time-Life International, Amsterdam], 1995 [Ediciones Folio, Barcelona]
 Swedish—1981 [Time-Life Books; Scandinavian Fulfilment House (distributor), Helsingborg]
 UK—1978 [“Florida’s Everglades”]

REFERENCES

- Anonymous. 1958. The roll call of living things. How the world’s animals and plants are classified. *The Book of Popular Science*, Volume 1, The Grolier Society, New York, p. 287–302. [reprinted verbatim in the 1959 edition, same pagination]
 Carr, A.F., Jr. 1953. *High Jungles and Low*. University of Florida Press, Gainesville, Florida. xvi, 226 p.
 Carr, A.F., Jr. 1956. *The Windward Road*. Alfred A. Knopf, New York. xvi, 258 p.⁵
 Carr, A.F., Jr. 1958. Labels for Things. *The Book of Knowledge 1958 Annual*, The Grolier Society, New York, p. 366–367.
 Carr, A.F., Jr. 1963. *The Reptiles*. Life Nature Library, Time Incorporated, New York. 192 p.
 Carr, A.F., Jr. 1964a. *Ulendo. Travels of a Naturalist In and Out of Africa*. Alfred A. Knopf, New York. xv, 258 p.
 Carr, A.F., Jr. 1964b. *The Land and Wildlife of Africa*. Life Nature Library, Time-Life Books, New York. 200 p.
 Carr, A.F., Jr. 1967. *So Excellent A Fishe. A Natural History of Sea Turtles*. The American Museum of Natural History, The Natural History Press, Garden City, New York. x, 248 p.⁶
 Carr, A.F., Jr. 1973. *The Everglades*. The American Wilderness/Time-Life Books, New York. 184 p.

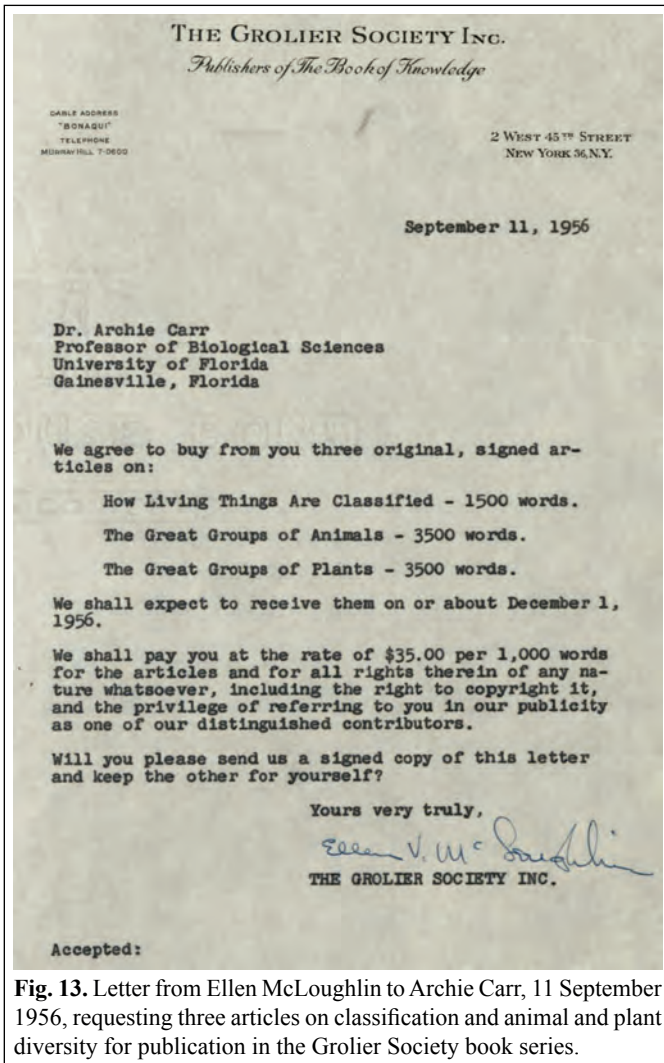


Fig. 13. Letter from Ellen McLoughlin to Archie Carr, 11 September 1956, requesting three articles on classification and animal and plant diversity for publication in the Grolier Society book series.

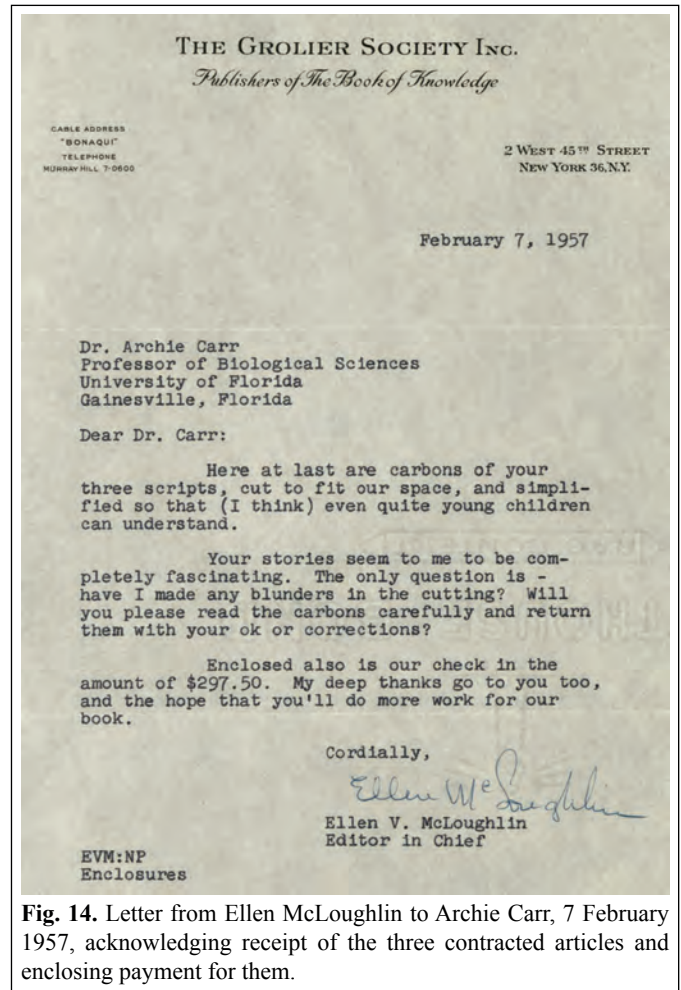


Fig. 14. Letter from Ellen McLoughlin to Archie Carr, 7 February 1957, acknowledging receipt of the three contracted articles and enclosing payment for them.

- Carr, A.F., Jr. 1994. *A Naturalist in Florida. A Celebration of Eden*. Edited by Marjorie Harris Carr. Yale University Press, New Haven, Connecticut. xviii, 264 p.
- Davis, F.R. 2007. *The Man Who Saved Sea Turtles. Archie Carr and the Origins of Conservation Biology*. Oxford University Press, New York. xii, 312 p.
- De Oliveira, B.J. 2018. Science in *The Children's Encyclopedia* and its appropriation in the twentieth century in Latin America. *BJHS: Themes* 3:105–128.
- Legg, M. 2003. Leggman's Time-Life Library. A compendium of Time-Life book information. Updated 22 April 2022. Accessed 27 April 2022.
- Macdonald, P. 2014. *Marjorie Harris Carr: Defender of Florida's Environment*. University Press of Florida, Gainesville. 258 p.

NOTES

1. Prior to 1973, when the USSR acceded to the Universal Copyright Convention, copyright in the USSR was extended only to authors in the USSR, and publishers were legally free to translate and publish works by non-USSR authors without adherence to the international convention.

2. The publication is not listed in the World Catalogue or on any online source I examined. There is no copy in the Marston Science Library at the University of Florida, or in the library of the Archie Carr Center for Sea Turtle Research at UF (Karen Bjorndal, pers. comm.). The herpetology library of the Florida Museum of Natural History is currently in storage and unavailable for examination.
3. Correspondence between Archie Carr and the editors of the Grolier Society, copies of the original typescript manuscripts for the three contracted articles [Box 13, Folder 1], and several editions of Carr's curricula vitae [Supplemental Box 1] are in the Archie Carr collection, Smathers Library, University of Florida. Examined 28 January 2022 and 4 March 2022.
4. Carr was later identified on p. 335 as a reviewer of "Turtles and Tortoises" in Grolier's 1966 issue of *The New Book of Knowledge*, p. 331–335.
5. Publication rights now held by the Knopf Doubleday Publishing Group.
6. Publication rights now held by the Scribner Publishing Group.

We suggest the following format for citing this article:

Dodd, C. K. Jr. 2022. The International Editions of Archie Carr's Books. *Bibliotheca Herpetologica* 16(7):82–89.

Additions to the Herpetological Bibliography of Johann Gottlob Schneider and some Bibliographic Details of *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*

Aaron M. Bauer

Department of Biology and Center for Biodiversity and Ecosystem Stewardship,
Villanova University, 800 Lancaster Avenue, Villanova, Pennsylvania 19085, USA
aaron.bauer@villanova.edu

INTRODUCTION

Bauer and Lavilla (2022) recently published a translation of *Historiae Amphibiorum*, the greatest herpetological work of the German philologist and natural historian Johann Gottlob Schneider (1750–1822). In the associated introductory text, they provided a bibliography of Schneider's published works comprising 127 books and articles. This bibliography had been compiled from a diversity of sources, both philological and biological. Almost immediately upon publication, however, I was made aware of several herpetological contributions by Schneider that had been omitted—all published in a single volume of a serial publication, *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*. These papers include no taxonomic novelties and largely repeat Schneider's earlier treatments of the species he discussed, nonetheless, for the sake of completeness, they should be appended to Schneider's bibliography.

DER NATURFREUND

Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte was published in eleven volumes over the period 1809 to 1824. At least initially it seems to have been issued weekly, with each installment including one plate and four pages of text, and a single volume being completed each year. However, as the intervals between volumes V and VI, VII and IX, and IX and X were two years, and three years elapsed between X and XI, it is unclear how frequently each of the 52 parts of these volumes were issued. As the title implies, the work emphasized the natural history of Silesia, then a part of Prussia and now in southwestern Poland, and was published in the Silesian capital Breslau (now Wrocław, Poland). The volumes featured hand-colored plates of Silesian plants, vertebrates, and fungi (52 plates per volume), however the text ranged widely, covering these organisms as well as the races of man and various extralimital natural phenomena. Portions included personal observation but much was derived from

previously published sources. The work was edited by Friedrich Gottlieb (Fryderyk Bogumił) Endler (12 March 1763 – 7 July 1822; date of death is sometimes given as 1830, but Endler (1824) makes it clear that he had died shortly after 1821) and Franz Paul Scholz (8 August 1772 – 17 January 1837), both natives of Lower Silesia. Endler was undoubtedly responsible for plates, but authorship of the text is not explicit, although it appears that much was also the work of Endler, with contributions from Scholz. However, individual articles are not typically credited to a particular author. In volume 11, editorship was credited to Endler, Mücke, and Scholz, Endler having succumbed to an illness early in its preparation (Endler 1824). Some of the plates appearing in volume 11 indicate H. Mücke as the artist. This is likely Heinrich Carl (or Karl) Anton Mücke (1806–1891). Although he would have been only 18 at the time, Mücke was already a gifted artist, who began his career in Breslau working on natural history themes (Nagler 1840).

A new series (Neue Folge) entitled *Der Naturfreund: oder Naturgeschichtliche Unterhaltungen* was issued in four volumes from 1828 to 1831 with Endler and Scholz prominently listed on the title page, but this series was “Neu aufgelegt und fortgesetzt von C. F. Stuckart” (published and continued by Carl Friedrich Stuckart, Silesian publisher, printer, artist, author, and student of F. G. Endler). This later series, which is not here considered further, maintained the tradition of 52 hand-colored plates per volume.

J. G. SCHNEIDER'S CONTRIBUTIONS

The herpetological content of the volumes is relatively extensive, with 18 plates appearing in volumes I–IV and VI–X. The herpetological subjects have been discussed and the plates reproduced by Schmidtler (2013) and Schweiger (2018). Volume VII has the greatest herpetological content with text and plates depicting *Coluber natrix* (*Natrix natrix*), *Coluber cherssea* (*Vipera berus*), *Coluber berus* (*Vipera berus*), *Coluber austriacus* (*Coronella austriaca*), *Anguis fragilis*,



Fig. 1. Plate 36, from volume VII of *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, accompanying the account on *Anguis*, largely written by J.G. Schneider.

and *Anguis lineata* (i.e., the juvenile *Anguis fragilis*) as well as comments on herpetological accounts appearing in earlier volumes. Schweiger further (2018) noted that some text was attributed to Prof. Schneider but did not provide details. Schmidtler (2008, 2013), the only other author who seems to have mentioned Schneider in connection to *Der Naturfreund*, specifically noted his contribution to the accounts dealing with *Anguis fragilis* and several snakes in volume VII. In fact, Schneider's contributions to this, and apparently, only this, volume were quite extensive.

The section on the slowworm does not bear Schneider's name in a formal author line, but as previously signaled by Schmidtler (2008), Endler explains in the third paragraph that, in light of his own limited knowledge of the species, he has sought the expertise of Professor Schneider, whose information is presented verbatim. The initial part of the paper (Schneider 1816a) accompanies plate 36 (engraved by Endler; Fig. 1). The text continues in five further sections under a simplified title (Schneider 1816b; listed separately here for bibliographic precision). A second *Anguis* plate, Tab. 39. *Anguis fragilis*. (Linn.) Die Blindschleiche and associated text (p. 153 top) appears not to relate directly to Schneider's

contribution. Schneider had previously written extensively on *Anguis* (Schneider, 1801, 1810) and his comments in *Der Naturfreund* largely repeat these observations.

In addition to the text on *Anguis*, Schneider provided additions to accounts on the frogs *Rana variabilis* (= *Bufotes viridis*) (Schneider, 1816c, d) and *Rana bombina* (= *Bombina bombina*) (Schneider, 1816e) that had appeared in earlier volumes, as well as to those on *Coluber natrix* (= *Natrix natrix*) (Schneider, 1816f, h) and *Coluber austriacus* (= *Coronella austriaca*) (Schneider, 1816g) that appeared in volume VII (see also Schmidtler, 2013). The anuran additions in part reiterate some of the text of *Historiae Amphibiorum* (Schneider, 1799), but he also mentions newer sources. The commentary on snakes, however, is entirely new as Schneider had not dealt with either European vipers or colubrids in *Historiae Amphibiorum* or other works. Collectively, Schneider's addenda published in *Der Naturfreund* demonstrate that he continued to be interested in herpetology and stayed current on new literature during what is otherwise a nine year period (1812 to 1821) with no herpetological publications (Bauer and Lavilla, 2022).



Fig. 2. Title page from author's copy of volume VII of *Der Naturfreund* showing "VII" and the "5." in 1815 neatly inked in a contemporary hand.

An examination of the other volumes of *Der Naturfreund* did not reveal any other contributions by Schneider, nor is Schneider mentioned in the indices of volume VII or any other volume, including the combined index of all 11 volumes published by Endler's widow (Endler 1824). None of the volumes includes a table of contents and authorship throughout, with the exception of the cited contributions by Schneider, is uncredited. This situation has certainly contributed to the obscurity of Schneider's comments on Silesian amphibians and reptiles as they are only "discoverable" by paging through volume VII of *Der Naturfreund*. Likewise, the modern references to Schneider's authorship (Schmidtler 2008, 2013; Schweiger 2018) deal primarily with other topics and only the first work explicitly bibliographically cites Schneider's contributions (Schneider, 1816a, b only).

BIBLIOGRAPHIC NOTES

WorldCat lists nine complete or incomplete sets of *Der Naturfreund* in addition to the two digitized copies. These include six in Germany, two in the United States and one in Poland. I am also aware of at least two partial sets that are present in private collections. Although copies are relatively rare on the antiquarian book market, the attractive plates occasionally become available. Given the rarity of the work, I take this opportunity to make some bibliographic notes. The

publisher listed by Schweiger (2018), Carl Friedrich Barth, was responsible for volumes I–V, IX and X and volume XI was published by "Graß, Barth und Comp." Volumes VI–VIII, however, give the publishing details as "In Commission bei Wilib. August Holäuffer." Wilibald August Holäuffer was a printer and publisher in Breslau, whose period of activity was 1816–1826. The vast majority of works listing Holäuffer as the principal publisher appeared 1816–1820 with most subsequent titles bearing the imprints of both Holäuffer and Graß, Barth und Comp.

I also take this opportunity to note a difference in the title page of my own copy of volume VII of *Der Naturfreund* and the online copies from the Wojewódzka Biblioteka Publiczna Opole (<https://obc.opole.pl/dlibra/publication/828>, used by Schweiger, 2018) and Digitale Sammlungen der Herzogin Anna Amalia Bibliothek of the Klassik Stiftung Weimar (<https://haab-digital.klassik-stiftung.de/viewer/toc/3883149179/1/-/>), as well as the copy illustrated by Schmidtler (2013). In these copies the title page takes the form:

Der
Naturfreund
oder
Beiträge zur Schlesischen Naturgeschichte.

Siebenter Band,
mit 52 illuminirten Kupfern,
von
Endler und Scholz.

Breslau 1816
In Comission bei Wilib. August Holäuffer.

My copy appears to have a generic title page (Fig. 2), with slightly different wording, but with "____ter Jahrgang" printed and "VII" added in ink (my only other volume, likewise has "VIII" inked in). Similarly, the date at the bottom of the page has "Breslau 181____" printed and the final digit inked in. In this case my copy bears the date 1815 not 1816 as is usually attributed to the volume and which is printed in the Opole and Weimar copies. This might indicate that the delayed volume VI had been completed before the end of 1815 (the date on its title page) and that volume VII had commenced in the same year and was recorded as such by the contemporary owner.

ACKNOWLEDGMENTS

I am indebted to Josef Schmidtler for drawing my attention to Schneider's contributions to *Der Naturfreund*. My apologies to Josef and to Mario Schweiger, for neglecting to take advantage of their fine scholarship when initially compiling Schneider's bibliography. I thank Josef Schmidtler and Kraig Adler for their constructive comments on an earlier version of the manuscript.

REFERENCES

- Bauer, A.M. and E.O. Lavilla. 2022. *J.G. Schneider's Historiae Amphibiorum: Herpetology at the Dawn of the 19th Century*. Society for the Study of Amphibians and Reptiles, Ithaca. lxxviii, 777 p.
- [Endler, F.G., widow of]. 1824. *Allgemeine Uebersicht und systematisches Register aller im Naturfreunde beschriebenen und abgebildeten Gegenstände. Ein Hilfsmittel, die in dem sämtlichen Werke gelieferten Artikel leicht aufzufinden*. Graß, Barth und Comp., Breslau. 22 p.
- Nagler, G.K. 1840. *Neues allgemeines Künstler-Lexicon oder Nachrichten von dem Leben und den Werken der Maler, Bildhauer, Baumeister, Kupferstecher, Formschneider, Lithographen, Zeichner, Medailleure, Elfenbeinarbeiter, etc.* Neunter Band. Meglinger: — Müller, Jan. Verlag von E. A. Fleischmann, München. [iv] 572 p.
- Schmidtler, J.F. 2013. *Catalogus Herpetologicus – Ein Historisches und bibliophiles Bilderbuch. Teil A. Populäre Naturgeschichten, Prachtwerke und frühe Vivaristik*. Privately printed, München. 66 unnumbered p.
- Schmidtler, J.F. 2008. Anfänge der Ringelnatter-Forschung um 1800 – eine Rückschau in Bildern. Pp. 1–15. In: Blanke, I., Borgula, A. and Brandt, T. (eds.), *Verbreitung, Ökologie und Schutz der Ringelnatter. Mertensiella* 17.
- Schneider, J.G. 1799. *Historiae Amphibiorum Naturalis et Literariae, Fasciculus Primus Continens Ranas, Calamitas, Bufones, Salamandras et Hydros in Genera et Species Descriptos Notisque suis Distinctos*. Apud Friederici Frommanni, Jenae [Jena]. ix, 264 p., 2 p. Corrigenda, pls. I–II.
- Schneider, J.G. 1801. *Historiae Amphibiorum Naturalis et Literariae, Fasciculus Secundus Continens Crocodilos, Scincos, Chamaesauras, Boas, Pseudoboas, Elapes, Angues, Amphisbaenas et Caecilias*. Fried. Frommann, Jena. vi, 374 p., pls. I–II.
- Schneider, J.G. 1810. [Introduction and comments]. Pp. 14–16 In: Lehmann, C.D.W. Über die Zerbrechlichkeit der Blindschleiche *Anguis (fragilis)* Lin.) und die Übereinstimmung des inner Baues derselben, mit den Eidechsen, durch die Zergliederung dargestellt. *Magazin für die neuesten Entdeckungen in der gesamten Naturkunde*, 4:14–31.
- [Schneider, J.G.] 1816a. Tab. 36. a. *Anguis fragilis*. b. *Anguis lineata*. (Linn.) Die graue Blindschleiche, Aalschlange, Bruchschlange, der Haselwurm, nebst einer jungen Blindschleiche. Pp. 141–142. In: Endler, F.G. and F.P. Scholz (eds.), *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, Siebenter Band. Wilib. August Holäufner, Breslau.
- [Schneider, J.G.] 1816b. Beschreibung der Blindschleiche. Pp. 146, 153–154, 157–158, 162, 177–178. In: Endler, F.G. and F.P. Scholz (eds.), *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, Siebenter Band. Wilib. August Holäufner, Breslau.
- Schneider, J.G. 1816c. Nachtrag zum N. F. VI. Band S. 85. *Rana variabilis*. Pp. 185–186. In: Endler, F.G. and F.P. Scholz (eds.), *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, Siebenter Band. Wilib. August Holäufner, Breslau.
- [Schneider, J.G.] 1816d. Fortsetzung des Nachtrags zur Beschreibung der veränderlichen Kröte, P. 190. In: Endler, F.G. and F.P. Scholz (eds.), *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, Siebenter Band. Wilib. August Holäufner, Breslau. [Schneider's name is not explicitly listed as author on this concluding section of his addendum to *Rana variabilis*].
- Schneider, J.G. 1816e. Nachtrag zur Beschreibung der Feuerkröte. III. B. Tab. 44. P. 198. In: Endler, F.G. and F.P. Scholz (eds.), *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, Siebenter Band. Wilib. August Holäufner, Breslau.
- Schneider, J.G. 1816f. Nachtrag zur Beschreibung der Hausotter oder Ringelnatter 7. B. 9. S. Taf. 3 u. S. 17, Taf. 5. Pp. 201–202. In: Endler, F.G. and F.P. Scholz (eds.), *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, Siebenter Band. Wilib. August Holäufner, Breslau.
- Schneider, J.G. 1816g. Nachtrag zu 7. B. 109. S. Taf. 28. *Coluber austriacus*. Die gefleckte Otter, österreichische Natter. Pp. 207–208 In: Endler, F.G. and F.P. Scholz (eds.), *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, Siebenter Band. Wilib. August Holäufner, Breslau.
- Schneider, J.G. 1816h. Nachtrag zur Beschreibung der Hausotter oder Ringelnatter, P. 208. In: Endler, F.G. and F.P. Scholz (eds.), *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*, Siebenter Band. Wilib. August Holäufner, Breslau.
- Schweiger, M. 2018. Historische Aspekte und Kommentare zu der Darstellung von Amphibien und Reptilien im Werk von: Endler und Scholz (1809–1824): *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*. 11 Bände mit mehr als 3500 Seiten, 572 handkolorierte Kupferstiche. – Carl Friedrich Barth (Breslau). *ÖGH-Aktuell*, (47):16–28.

We suggest the following format for citing this article:

Bauer, A. M. 2022. Additions to the Herpetological Bibliography of Johann Gottlob Schneider and some Bibliographic Details of *Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte*. *Bibliotheca Herpetologica* 16(8):90–93.



The Arrival of the Dragons of our Forefathers, or Some Remarks on Early [non-English] European Encounters with Exotic Reptiles

Dr. h. c. René E. Honegger¹ and Daniel G. Blackburn^{2,3}

¹Mythenstrasse 6, CH 8802 Kilchberg, Switzerland, reh8802@gmx.ch

²Dept. of Biology, Trinity College, Hartford CT 06106 USA daniel.blackburn@trincoll.edu

³corresponding author

INTRODUCTION

Reptiles always fascinated humankind: they stood for fear, superstition, and danger (Oken, 1836; Brehm 1863–1869; Maehly, 1867). With the publication of the first animal encyclopedia (1551–1587) by Conrad Gessner (1516–1565), the “Amphibians” (as they were called at that time) gained much attention in Europe. Giant reptiles, especially giant snakes and crocodiles, were of great interest—the former as descendants of the Dragons (*sensu* Gessner), and the latter as dangerous exotic man-eaters.

Reptile specimens were a common feature of the European natural history cabinets (Wunderkammer or “cabinets of curiosity”), a popular cultural phenomenon of the 16th century and beyond (von Schlosser, 1918; Engel, 1986; Mauriès, 2002; Impey and MacGregor, 2017). After the publication of the Linnaean systematics (e.g., Linnaeus, 1758; Müller, 1774), the demand for exotica to equip the growing number of these natural history cabinets was greater than the supply. Turtle shells were as much valued as the dried skins of giant snakes (Oken, 1836), and stuffed crocodilians commonly were displayed along with other preserved reptiles (Mauriès, 2002; Fig. 1). Chameleon specimens also were highly prized, in part due to their supposed ability to subsist entirely on air (Findlen, 1994; Bowry, 2014).

With the process of European colonization of tropical regions and the beginning of scheduled ship traffic, an increasing number of live, strange, unknown reptiles and other animals started to arrive at the ports of London, Amsterdam and later Hamburg (Pérez de Tudela and Gschwend, 2007). These animals were exhibited by wandering showmen, presented at markets and fairs, displayed in traveling menageries, lodged in royal courts, and eventually, housed in zoological parks (Dittrich, 2007). Accordingly, for hundreds of years, the European populace had opportunities to observe living reptiles from foreign lands. This situation represents an aspect of the public face of herpetological history that tends to be overlooked in academic studies, given that relevant written sources and printed materials are scarce, obscure, and difficult to access.

This account draws upon such sources to trace historical aspects of the early introduction of living reptiles from around the world into continental Europe. Features that are considered herein include the public display of such reptiles, their transport from abroad, and their maintenance in captivity. In addition to works in the primary and secondary literature, we offer documentary evidence in the form of the rare “broadsheets”, posters, newspaper articles, and advertisements that described public displays of reptiles in the 16th through 19th centuries.

THE CURIOUS EXOTICS ARRIVE

As “exotic” vertebrates were brought into Europe, clever businessmen took the opportunity to trade in them. These entrepreneurs acquired the live specimens directly from sailors as they arrived by ship, or collected animals that they had ordered from the sailors prior to their departure (Dittrich, 2007; Hagenbeck, 1912). Among such animas were Indian rhinos (*Rhinoceros unicornis*) and Asiatic elephants (*Elephas maximus*) from the Far East, and capuchin monkeys (Cebinae), lowland tapirs (*Tapirus terrestris*), turkeys (*Meleagris* sp.) and Amazon parrots (*Amazona* sp.) from the New World, followed later by marsupials and cassowaries (*Casuarius* sp.) from New Holland [Australia] (Dittrich, 2007). Some of these exotic animals were acquired by feudal institutions to please their owners or served as feudal gifts. Others became famous as individuals. For example, the travels throughout Europe of the female Asiatic rhinoceros “Clara” from 1741 till 1758 and of the female Asiatic elephant “Hansken” from 1633 till 1655 are well documented (Abbing, 2006; Rookmaaker, 1998).

Countless individuals wandered through the European countryside, displaying native fauna such as a European brown bear (*Ursus arctos*), an Alpine marmot (*Marmota marmota*), or a Lammergeyer (bearded vulture) (*Gypaetus barbatus*) (Honegger, in press). Traveling entertainers—known as “jugglers”—often were not well received by the communities they visited and were chased as vagabonds by the country police (Ziegler, 1974).



Fig. 1. Engraving from Ferrante Imperato's 1599 *dell' Historia Naturale*. Imperato (1525?–1615?) was an apothecary and collector of zoological and paleontological specimens. The engraving is the earliest pictorial representation of a natural history collection. In addition to the stuffed Crocodylian (alligator?), the illustration includes lizard and snake specimens. Venice, 1672. Public domain image, available under the Creative Commons CC0 License from Wikipedia.

After 1800, a growing number of traveling menageries displaying live exotic animals began to tour continental Europe as far east as Moscow (Rieke-Müller and Dittrich, 1999; Parker, 2021). Their target areas were the marketplaces of medieval towns. In these locations, the annual spring and autumn markets, sometimes in connection with colonial exhibits and parish-fairs, attracted large crowds. The rural people were either informed by heralds or market-criers. These heralds advertised, often while colorfully dressed, the arrival of a roadshow and its sensations. Within the cities, the showmen advertised in local newspapers and often invited local naturalists to review their establishment, as described below.

An important medium for communication were the Einblatt-Drucke (broad-sheets or single-leaf prints), also called Schausteller-Zettel (menagerie-billboards, posters), which were posted all over the city (Faust, 1998; Wolf, 2022) (Figs. 2 and 3). They informed the public about the location of the show, the times, the animal inventory, special attractions, and

admission fees (Rieke-Müller and Dittrich, 1999). Such fees were graded according to the attendee status (children and servants paid only half price). Some showmen proclaimed on their invitations that they offered a discount for students of natural history. At Bern in 1819, the show of Mme. Victoire Padovani, of Paris, who probably showed the first living crocodiles in Switzerland, asked between six to eight batzen. At Leipzig, it was customary that at the end of their stay, some menageries opened their doors to admit the “inmates of orphanages and alms-houses” for free (van Aken, 1836).

During the famine of 1816, “the year without summer”, which followed the eruption of the volcano Tombora in Indonesia (April 1815) (Brönnimann and Krämer, 2016), apparently there were no shows on the roads.

To perform in each sovereign territory throughout Europe, the showmen had to apply for a permit and to pay market tolls (Ziegler, 1974). In return, they received the magisterial permit to display. In some of the surviving permit sheets, kept in



Mit hoher Obrigkeitlicher Bewilligung
macht Untertanmüller hierdurch ergebenst bekannt, daß er heute und die folgenden
Tage dieser Woche
die größte Natur-Seltenheit,
nämlich:
**Eine große lebendige Königs-
Abgotts-Schlange**
oder
Abgotts-Schlange
aus Java, welche 18 Fuß lang und 2 Fuß im Umfange dick ist,
von Morgens 10 bis Abends 9 Uhr zeigen wird.

Die Königs- oder Abgotts-Schlange ist die größte die man kennt; wenn sie ausge-
machtet, ist sie bis 10 Fuß lang und dick als ein Mann im Leib; sie bewohnt Indien,
die Inseln des Ozeans und Südamerika. Abgotts-Schlange heißt sie daher, weil sie von
vielen Indianern gleichsam angebetet wird; sie kann ein ganzes Reh verschlingen und den
stärksten Löwen, Ochsen oder Tiger erdrücken; in ihrer Heimath wird sie dadurch sehr nüt-
zlich, daß sie viel lästiges Ungeziefer, als Heuschrecken, Kricken, Eidechsen u. s. w. ver-
tirt, daher auch wohl die Indianer so großen Werth in sie setzen, denn sie halten es für
das größte Verbrechen eine zu tödten und besitzen eine solche Thier sehr hart; sie ist durch-
aus nicht giftig und ihr Fleisch essbar; sie ist so gefällig, daß die Indianischen Gantler-
sie zu vielen Kunststücken abrichten. Diese, welche hier gezeigt wird, ist die größte, welche
je in Europa ist gezeigt worden, und wird gewiß jeden Naturforscher sowohl, als jedem An-
dern, welcher keine Gelegenheit hatte, dergleichen Thiere in ihrem Vaterlande zu sehen, völ-
lig befriedigen; sie ist von heftiger Farbe, mit Schuppen und gelben Flecken gezeichnet.
Sie frist lebendige Thiere, als: Kaninchen, Hühner, Gänse, Schaafe und Enten, und be-
kومت alle 3 oder 4 Monate nur zu fressen.

Mittwochs, Freitags und Sonntags Nachmittags 4 Uhr wird
die Schlange gebadet.

Der Schauplatz ist bei Hofens Garten hinter der Bude No. 1.

Preise der Plätze: Erster Platz 4 Gr. Zweiter Platz 2 Gr.
H. Hill.

Fig. 2. A Plakat (Broadsheet) with an interesting vignette by H. Hill, displaying the greatest rarity: a live “Königsschlange” (Abgotts snake: *Boa constrictor*) from Java. 1825, Leipzig, 37 x 22 cm. (Stadtgeschichtliches Museum Leipzig, ST 000544). Public domain image reproduced under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International Public License.

libraries, additional rubber stamps are visible, indicating that a special billboard tax also was paid. The magisterial permit is always mentioned in the preamble, as well as an almost stereotypical description of the uniqueness of the show. To a certain extent, the magisterial permit was a serious attribute that distinguished the showmen from vagabonds.

At that time, these printed sheets were the most important means of communication to the public (Faust, 1998). They were locally printed, and sometimes illustrated with wood- engravings, with the blocks having been delivered by the owner of the show. It is in the nature of these fragile prints that few are



Mit hoher Obrigkeitlicher Bewilligung
hat Unterzeichnete die Absicht, auf seine Zurechnung,
**eine große
Menagerie**
Sonntag, den 21. September 1858, und die folgenden Tage
zu zeigen.

Unter verschiedenen andern Seltsamkeiten befindet sich in dieser Menagerie ein
chinesischer Bisamochse,
oder: **Sarlik-Ukura,**
welcher hier noch nicht gezeigt worden, aber in der Menagerie, während der Reise,
sprechende Papageien, mehrere Arten Affen, ein
Orang-Utang so wie ein persischer Hirsch.

Zu sehen dieses Thierchen ist mit der Gattin, die, bei jeder Menagerie nur aus einem
und hier auch aus mehreren Exemplaren besteht, eine kleine Thier- und Vogelmenagerie, die
mit besonderem Aufsehen, der eine in anderen Ländern zu sehen wurde, beiseite steht.

Die Menagerie befindet sich im Altschlossischen Hofe am Paradeplatz
und ist von 10 Uhr Morgens bis 2 Uhr Abends geöffnet.
Die Fütterung der Thiere geschieht um 6 Uhr Abends.

Preise der Plätze: 1. Platz 20 Kr. 2. Platz 15 Kr. 3. — Kinder zahlen die Hälfte.
Feldstein.

Fig. 3. Feldstein’s wandering menagerie, 1858. Besides advertising speaking parrots and an Orang Utan, the two vignettes are of special herpetological interest. Public domain image.

still in existence and thus they are highly-priced bibliophilia (Anonymous, 2020). These “Einblattdrucke” (broadsheets or single-leaf prints) have a long history. They developed in parallel to the printers’ art. Excellent documentation of these pre-1800 public advertisements is given by Faust (1998). A very early example is of herpetological interest: in 1564–1565 a stuffed Nile crocodile (*Crocodylus niloticus*) was the attraction at a fair in Cologne (Faust, 1998) (Fig. 4).

At the beginning of the 17th century, Ulrich Krom (1587–1637), a citizen and “avanturier” (adventurer) of St. Gall in Eastern Switzerland, acquired on one of his voyages to Egypt a stuffed Nile crocodile and brought it to St. Gall. He sold it to a wealthy friend, who donated the specimen in 1623 to the Vadiana, the city library in the former St. Catharine monastery. At that time, St. Gall was a rising center for the textile trade, with well-to-do citizens. The stuffed crocodile became the talk of the town and triggered the start of the natural history cabinet movement. Around 1750, the crocodile was displayed suspended from the ceiling. This sight was mentioned in an early travel guide to Switzerland (Hagenbuch, 1727). Crocodiles hung from above were typical sights at the natural history cabinets during that period (Mauriès, 2002) (Fig. 1). Today this particular Nile crocodile specimen, of 402 cm in length, is prominently exhibited at the Naturmuseum in St. Gall (Heierli, 1969) (Fig. 5).

After the 16th century, crocodiles, as parts of the bestiary, became one of the symbols of the apothecaries (Murphy, 2013). Here various species, mainly Nile crocodiles and to a lesser extent caimans (*Caiman* sp.) hung from the ceiling (Fig. 1), advertising to the customers that remedies from all over the world were available. Today, we would speak of this practice as a promising marketing concept.

EARLY DISPLAYS OF REPTILES AND OTHER ANIMALS

According to Vogel (1756), in October 1692, at the Michaelis Market in Leipzig (Germany), there was an [Asiatic] elephant, an “Orenutan” (Orang Utan) (*Pongo* sp.), and two salamanders, all on “display for money”. The two salamanders may have been shown “as strange creatures”. For the town-people, to whom fire represented a feared mortal danger, the Fire salamanders (German name: Feuersalamander), which purportedly “could put out a fire” were an attraction that was reinforced by their dragon-like shape. They were definitively not Giant Salamanders, as the first live *Andrias japonicus* was imported only in 1830 to Leiden (Netherlands) by Franz von Siebold (Engelmann, 2012).

A few years later, in September of 1698, the Menagerie “De Witte Oliphant” was on display at the so-called Boter-Market in Amsterdam. Two living “Campergoo”, presumably Indian pangolins (*Manis crassicaudata*), and an Asian water monitor (*Varanus salvator*), were offered for sale together with an Asiatic elephant and a Lowland Tapir (Pieters, 2001) (Fig. 6). In October 1707 a marine turtle with a carapace-length of about 170 cm and weighing about 176 kilos was displayed; it had been collected in the Wijkermeer, NW of Amsterdam. According to Brongersma (1961), it was probably a logger-head turtle (*Caretta caretta*). The manager of the “De Witte Oliphant” bought this specimen for 300 guilders, “but sadly [the animal] died before the year ended”. This serious setback was the end of that menagerie (Pieters, 2001). [Throughout this paper, original German phrases and excerpts have been translated into English by the senior author, REH.]

In 1765, Arnout Vosmaer (1720–1799) studied and demonstrated at the “Little Loo” menagerie of Prince William V (1748–1806) near Den Haag the bite effects of a *Crotalus durissus* from Surinam (Adler, 2012; Pieters, 2001; Bauer and Bell, 2014). Small birds and mice were used as prey to test toxicity of the bite.



Fig. 4. “Einblattdruck” announcing a stuffed Nile Crocodile at a Cologne fair, 1564/65. “Real description of a wonderful and cruel worm... called Crocodilian in Latin and Lindwurm in German”, 17.7 x 37.2 cm. This Einblattdruck belongs to the oldest surviving sheets of animal exhibition. (Source: Zentralbibliothek Zurich, e-manuscripta PAS II 6/4).



Fig. 5. This stuffed Nile crocodile, a gift from a Swiss adventurer, returning from Egypt, was in 1627 first displayed suspended from the ceiling of the Vadiana, the city library in the former St. Catherina monastery. Now, this particular specimen of 402 cm in length, is exhibited in the new Naturmuseum St. Gall (Photo Naturmuseum St. Gall).

THE TRAVELING MENAGERIES WITH LIVE REPTILES

After about 1810, a few traveling shows began to specialize in the exhibition of live reptiles (Rieke-Müller and Dittrich, 1999; Dittrich, 2007) (Figs. 7 and 8). The townfolk wanted to see the “Dragons” of their forefathers. The showmen capitalized on this public curiosity, developed a new trade, and began to display “terrible beasts” and strange creatures. Among the traveling menageries were those of Mr. Lehm-



Fig. 6. Menagerie “De Witte Olifant” (1698). On September 19, 1698, “De Witte Olifant” offered “two living Campergoo” presumably Indian pangolins (*Manis crassicaudata*) and an Asian-water monitor (*Varanus salvator*) for sale (Pieters, 2001). Public domain image; Reproduced from *Wonderen der natuur* (Velten, ca. 1695–1709).

ann, the Austrian Peter Egenolf, the Menagerie of Alois Kopper, the Snake collection of Thomas Gulley and Schmid of London, the Menagerie of Benoit Advinent (1801–1861), the Royal-Dutch Menagerie of Herman van Aken (1797–1834), and the Great Royal Menagerie and Snake collection of John van Dinter. The attribute “Royal” was awarded by the Dutch Royalty and was excellent publicity (Rieke-Müller and Dittich, 1999).

Traveling over longer distances at that time was extremely stressful, for the showmen, their horses, and their exotic treasures. Maintained roads existed only between major cities, varied considerably in quality, and were impassable during bad weather. On one of his broadsheets of May 1836 in Leipzig, van Aken advertised that he was hiring 28 strong drawing-horses to relocate his menagerie to Halle, 40 kilometers away (van Aken, 1836). To relocate from Zurich to Munich (280 km) in 1830 took the menagerie of van Aken 70 days. In some lowland areas of Europe, waterways were used

to travel. Later, when the railroads were built, traffic became easier (Rieke-Müller and Dittrich, 1999).

THE MENAGERIES

Described below are some prominent menageries that displayed reptiles and that traveled through Europe in the early to mid-1800s.

Dieter'sche Menagerie On 26 May 1834, in a menagerie at Altenburg, Germany, a giant snake, called “Anaconda” laid 34 eggs. The brooding female was kept between blankets at a temperature of 36° Celsius. The first young were said to have hatched on 18 June. (Lenz, 1878, p. 70) [These dates, like the identification of the snake, are most likely in error].

Mr. Lehmann's Menagerie, 1828. Mr. Lehmann's Menagerie" showed in Königsberg and Moscow two giant snakes, "Python tigris", in one cage. One of them, about 12 feet (3.7 meters) long, laid fertile eggs in Moscow; the snakes had been kept together for three years (Oken, 1836, p. 535).

The Menagerie of Alois Koppler (active around 1827–1833 in Germany and Switzerland) (Figs. 9 and 10). Alois Koppler presented in 1827 “his extraordinary collection of amphibians” [sic] (*sensu* Linné: Müller, 1774) indoors at the Berne Casinohall. Among them were various species of giant snakes and four “miraculous” crocodiles from the Nile River in Egypt. He advertised that “the snakes and the crocodiles will be bathed every day at four, there will be a special admission” (Koppler, 1827). In 1832, in St. Gallen he exhibited “a giant snake, which laid, after its copulation in Geneva, a large number of eggs, and some crocodiles of different sizes” (Ehrenzeller, 1833) and advertised his large, unique collection of “extremely rare reptiles”. All snakes and their geographical origins were presented under nearly the same fantasy names used in 1828 by van Dinter at Vienna (Anonymous, 1832), names which were criticized by Fitzinger (1828a) (see Table 1).

After his visit to the 1833 show, where he viewed the feeding of the giant snakes with live rabbits and chickens, the Swiss naturalist and theologian Peter Scheitlin of St. Gall (1779–1848) commented: “Such a show, horrible as it is, attracted enormous masses, it is definitely not to be attended by women. At least, this may be for writers of natural history only, however, also they may conclude, that nature should prohibit such behavior” (Scheitlin, 1833).

The Great Royal menagerie and snake collection of Thomas Gulley and Schmid, London (active around 1824–1844 in Austria, Germany, Italy and Switzerland) (Figs. 11–13). It was probably the show of Thomas Gulley and Schmid of London, which presented “a live giant snake which devoured live ducks” in a Guildhall of St. Gall, and attracted large crowds at the spring-market of 1824 (Ehrenzeller, 1825). As noted above, St. Gall was then an important center for the tex-



Fig. 7. Menagerie with snake-tamer by Paul Friedrich Meyerheim (1842–1915). Painted in 1864. Image provided compliments of the Stadtmuseum Berlin. Not available for reproduction, duplication, or transfer. Reproduction: Hans-Joachim Bartsch.

tile trade and thus, an attractive city for menageries. In 1829, 1836, 1840, 1841, and 1842 this menagerie was in Switzerland again (Aarau, Berne, and St. Gallen) and displayed several giant snakes, among them the a “Boa constrictor, the strangler of Senegal”, together with “a young Hanoverian, six feet (2 meters) tall, a beautiful giantess”, sometimes accompanied by a peculiar Dwarf, aged 36 and only 36 inches tall (Anonymous, 1836, 1842) (Fig. 11). In Vienna in 1829, Gulley added “an embalmed tattooed head of New Zealand Chieftain, a man-eater” to his show (Anonymous, 1829a; Marschall, 2016) (Fig. 12). Gulley and his menagerie also travelled to Italy (Verona in 1834, and Pisa in 1838), where he Italianized his name to Tommasso Guilley. In 1843 and 1844 he travelled with his menagerie to Leipzig (Germany) (Anonymous, 1944).

Peter Egenolf’s Menagerie (active around 1825–1846, in Austria and Switzerland). Peter Egenolf, probably of Austrian origin, traveled with his menagerie in Germany, Switzerland and Austria. His snake-collection was highly praised by a naturalist in a newspaper in St. Gall (Switzerland) (Anonymous, 1838).

The Royal-Dutch Menagerie of Herman van Aken (active around 1797–1834) (Figs. 14 and 15). This menagerie travelled from Amsterdam throughout Europe, displaying large mammals and birds, and some reptiles, which were commented on in the *Verzeichniss sämtlicher Tiere* (complete inventory) in the Menagerie of Hermann v. Aken (van Aken, 1831). Five reptile species are highlighted: Der hechtsrüs-selige [pike-snouted] Krokodil (“Alligator Lucius” [sic]), der tigerfleckige [tiger spotted] Python (“Python Tigris” [sic]), die eigentliche [real] Boa, die Anakonda, and das Chamäleon “Lacerta Chamaleon” [sic]), along with a woodcut of a snake-handler.

The Great Royal Menagerie and Snake collection of John van Dinter (active around 1810–1840) (Fig. 16). John van Dinter’s show was on the road in Germany and Denmark. In May 1828 and 1829, van Dinter was at the St. Gall spring-fair, displaying “two live rattlesnakes” (Ehrenzeller, 1833) and “the largest giant snakes ever seen”, one of them measuring 24 feet (7.3 meters) (Anonymous, 1829b). The Swiss zoologist Hans Rudolf Schinz (1777–1861) must have visited van Dinter’s giant snakes. He reported in detail about the

Table 1. Snakes shown in 19th Century Menageries of Continental Europe. Source for menageries: Anonymous 1944 and sources listed in the text.

MENAGERIE	DATE	LOCATION	COMMON NAMES	STATED ORIGIN	REMARKS
ALOIS KOPPLER	1827–1833	Germany, Switzerland			
	1819	St. Gall	The great anaconda from Samarang	Java island	
			The boa constrictor	Brazil	
			The <i>Python tigris</i> or the house-snake	Brazil	
			The Harlequin snake	East India	
			The edged boa	Brazil	
			Colobera de capello or the great cobra de capello	East India	
			The great North American sea snake	Nort America	
			The great boa from Africa	Africa	Devoured 11 large poultry at the last stop, in presence of the King of Bavaria
	1827	Berne	The giant snakes	China	Eggs laid after copulation at Geneva
	1832	St. Gall	The great North America sea snake	Mississippi and Amazon rivers	24 feet long (7.3 meters)
UNKNOWN	1822	Leipzig	Three large 'living' giant snakes		
	1834	Altenburg, Germany	Anaconda	?	34 eggs laid; brooding female kept in between blankets; young hatched 06. 1834
	1836	Berne	A live giant snake		
LEHMANN	1828	Koenigsberg /Moscow	The <i>Python tigris</i>	?	Fertile eggs laid in Moscow
THOMAS GULLEY & SCHMID	1824–1844	Austria, Italy, Germany, Switzerland: various cities			
			The great Boa	Gulf of Mexico	23 feet long (7 meters)
	1824	St. Gall	A live giant-snake	?	
	1829	Vienna	The anaconda	Java	
			The harlequin snake	the rocks of Ceylon	Ceylon
			The sea snake		She laid eggs at Iglau (Jihlava), Costa Rica
			Two harlequin snakes	the rocks of Java	
	1829–1842	Switzerland: various cities	Six live snakes, among them a boa constrictor, the Strangler of Senegal	Senegal	
	1841–1842	Switzerland: various cities	One large boa, the boa marin	Gulf of Mexico	Measuring 23 feet; eggs laid, after copulation in Le Mans/F (nd), 11 young hatched at Paris August 8th & 9th 1839; sent to Paris and London.
			The boa python	Brazil	

THE ARRIVAL OF THE DRAGONS OF OUR FOREFATHERS, OR
SOME REMARKS ON EARLY [NON-ENGLISH] EUROPEAN ENCOUNTERS WITH EXOTIC REPTILES

			The red boa from Brazil	Brazil	
			The black-spotted boa		
			The Broday snake, <i>Boa brodiea</i>	North America	
			Die Harlekin Schlange	the rocks of Ceylon	
			The large anaconda or house-snake	Java	
PETER EGENOLF	1825–1846	Austria, Switzerland, Germany	The giant snake <i>Python tigris</i>		
HERMAN VAN AKEN	1815–1834	Europe	The tiger-marked python, <i>Python tigris</i>		
			The real boa		
	1833	Vienna	The anaconda	Java	
			Pedda Poda		
			The Javanese anaconda	Java	Over 14 feet long (4.3 meters)
			The Asiatic boa constrictor		
			The diamond- or king-snake	Ceylon	
JOHN VAN DINTER	1823–1843	Germany, Switzerland, Denmark: various cities			
	1828	Vienna	The sea-snake Boa marina		
	1840	Vienna	Three Asiatic giant snakes		Small specimens
			The anaconda	Java	The largest 24 feet long (7.3 meters)
			The Abgott-snake		
			The oriental king-snake		
			The Ceylonese yellow-red rattlesnake.	Ceylon	“Crotalus exalbidus maculis flavescens”
			The rattlesnake	North & South America	
			The tamed boa	Ceylon	
	1860	Catalogue	The boa constrictor, king constrictor, the giant snake	East-India	
			The streaked constrictor	East-India	
			The amethyst-colored constrictor, Bora <i>Python bivittatus</i>	East-India	
			The <i>Boa scytale</i> anaconda, abgottsnake	Brasilia	
			The rattlesnake	America	
HILL, H.	1825	Leipzig	The king- or abgott-snake	Java	Measuring 19 feet long (5.8 meters)



Fig. 8. Menagerie by Paul Friedrich Meyerheim. Painted in 1894. Public domain image, available under the Creative Commons CC0 License.

demonstrations, dispelling the claim that the snake salivates its prey before swallowing it. He also mentioned that giant snakes in Europe mate and lay eggs, “but never do such eggs hatch” (Schinz, 1833).

During his stop at Nuremberg in October 1826, van Dinter posted an extensive report on biological aspects of his snake collection, such as shedding of the skin and the subsequent feeding of live prey. He especially mentioned the mating between “the Pamborio (-snake) and the anaconda” in the presence of Professor Martin Hinrich Lichtenstein (1780–1857), director of the Berlin Zoologischer Garten (1844–1857) (van Dinter, 1826).

In autumn of 1830, van Dinter was again in Vienna, exhibiting the remarkable chameleon (“*Lacerta chamaeleon*”) (Fig. 17) and posting that a new shipment of animals had arrived, among them “a rattlesnake (*Crotalus exalbidus maculis flavescentibus* [sic]) from Ceylon” (Anonymous, 1830). In the spring of 1833, van Dinter also exhibited giant snakes at St. Gall and on 10 May he advertised, that the “Hydra”, 24 feet long (7.3 meters), which had just shed its skin, would be fed a live billy-goat. For that spectacle, he asked a higher admission fee (Anonymous, 1833).

Advinet’s Menagerie. Benoit (“Benedict”) Advinent (1801–1862), of French origin, owned a Menagerie and “ein Affentheater” (a “Monkey theater”) and called himself the

“supplier of exotic fauna to the k. & k. Menagerie at Schönbrunn, Vienna” (Fig. 18). In his “History of the Schönbrunn Menagerie at Vienna” Fitzinger (1853) mentions several species delivered by Advinent.

Between 1823 and 1862 Advinent travelled through Austria, Italy and Eastern Europe (Wolf, 2022) (Fig. 19). In addition to monkeys, his early menageries included an antelope, a dromedary and an “unbekannte Tier” (unknown animal) identified by Fitzinger as a sloth-bear (*Melursus ursinus*) (Wolf, 2022). According to an advertisement in the *Wiener Zeitung*, his collection also included giant-snakes, rattlesnakes and crocodiles (Advinent, 1826). Another ad in the *Wiener Zeitung* boasted that prominent visitors had attended the spectacle—Maria Louise of Austria (Napoleon’s 2nd wife) and their son Napoleon Franz (Duke of Reichstadt). To emphasize the seriousness of his shows, he assured himself, apparently more than his contemporaries, of the support from critics of naturalists (Wolf, 2022). In addition to Leopold Fitzinger (Vienna) and Martin Hinrich Lichtenstein (Berlin), Ludwig Reichenbach (1793–1879) of Dresden, was cited in his publicity. Leopold Fitzinger visited his show in Vienna in 1830 and was impressed by the longevity of individual alligators and rattlesnakes that he knew from a visit four years earlier. However, Fitzinger harshly disapproved of the names under which Advinent displayed the animals during the shows (Fitzinger, 1830).

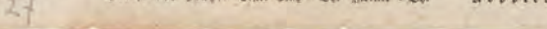


Fig. 9. Koppler menagerie, 1827. This billboard printed by Ludwig Albrecht Haller, Bern, 1827, advertising the Koppler menagerie is classical: it contains the fantastic illustration of a giant snake feeding on a calf, followed by the boastful description of the snakes and the crocodiles. It also mentions the “Ichneumon” (mongoose), the fearless enemy of the crocodiles. Admission fee for the show in the Casino: 1st seat: six batzen. Universitätsbibliothek Bern, MUE DB Hal.: K1:2. (Koppler, 1827).

Advinent's menagerie grew in size and popularity. By 1844, his "Verzeichniss sämmtlicher Thiere [sic]" listed in the collection the Alligator, the giant snakes and the rattlesnake, along with about 20 types of mammals (panther, tiger, leopard, jaguar, kangaroo, bear, hyena, opossum and armadillo) and seven bird-species (Advinent and Zaneboni, 1844). After Benoit Advinent's death in 1862, the menagerie continued to tour until 1869, under the supervision of his daughter Charlotte and her husband, Louis Cocchi (Wolf, 2022).

In summary, the above menageries included giant snakes accompanied by crocodiles and rattlesnakes. Of the Sauria, only chameleons were shown and only one showman had tor-



Fig. 10. Three vignettes from various broadsheets of Alois Koppler, St. Gall, 1833. Besides reptiles, the shows of Koppler and Gulley & Schmid touring through Europe exhibited curious objects to attract the people. One of them was an embalmed head of a New-Zealand Chieftain (shown at bottom), “a man-eater. This Maori was killed in a battle with English conquerors.” (Kantonsbibliothek St. Gallen, Vadiana).

toises in his collection. As further attractions, they also kept exotic mammals and birds. Others displayed a human giantess, dwarfs, and embalmed human heads (Scheitlin, 1833; Marschall, 2016).

DISPLAYED REPTILES

THE GIANT SNAKES

The first living giant snake ("*Asterophis Tigris*" [sic]) (*Python molurus*) in Vienna, was exhibited in 1820 by the menagerie Tourniaire "beautifully preserved, well-nourished and of peculiar, special sluggishness" (Fitzinger, 1836).

It was a custom of all showmen, to assure their "most honorable guests" that their snakes were the largest and the "only



Mit hoher obrigkeitlicher Bewilligung.

Thomas Gulley und Schmid, aus London,
haben die Ehre, die Liebhaber der Naturgeschichte zu benachrichtigen, daß sie in dieser Stadt mit
sehr erfreuendwichtigen

Natur-Produktionen
angekommen sind, welche in

sechs lebendigen Schlangen
von der seltensten Schönheit bestehen.

Man sah noch niemals eine solche Sammlung von Natur-Produkten vereinigt.

Die große Klapperschlange aus Amerika.
Die einzige, welche in unsern Gärten vorkommt. Sie ist die gefährlichste aller Schlangen, wenn nicht über die Klapperschlange aus Amerika, welche gleichsam genannt wird. Diese Schlange, die sich nach Süden fortbewegt, ist sehr gefährlich. Sie ist in der Gegend, die sie bewohnt, sehr gefürchtet. Sie ist in der Gegend, die sie bewohnt, sehr gefürchtet.

Die Meerschlange,
aus Amerika kommend, die größte, die man noch nie gesehen hat.

Der große Boa mit dem Beinamen: der Erwärger,
von einer außerordentlichen Größe und Dicke.

Der große Anaconda aus Java.
Wenn er in seiner vollen Kraft ist, so geht er auf die wilden Thiere los; er erlegt sie um sie, erdrückt sie und macht sie für die Welt; das überlegte Pferd vermag seinen Trümpf nicht zu widerstehen. Herr Gulley, König, Obermeister, leitet eine Expedition, um diese Thiere zu fangen, die die Bevölkerung dieser Inseln bedrohen.

Die Schlange Harlekin der Felsen aus Java,
auch Hauschlange genannt,
hat eine Reihe von verschiedenen Farben, von Kopf bis zum Schwanz.

Ein großes Krokodil aus dem Nil,
das größte, welches für alle Menschen in der Welt. Manerzie zu London ausgeführt war.

Der Caiman oder Alligator vom Amazonasfluß.
Der sich von verschiedenen Orten und sehr gut erhalten, gleich als ob er frisch gefangen wäre.

Unter andern wird man auch eine große Zahl von Loris aus China und Neuholland bekommen.

Die junge Riesin.
Diese junge Riesin ist 7 Fuß 6 Zoll hoch. Sie ist die jüngste und größte von sechs Riesinnen. Der Vater ihrer Mutter wird mindestens 7 Fuß 6 Zoll, er beginnt sie auf ihrer Reise und behält sie gegenwärtig hier. Diese Riesin ist geboren aus China, das England gehört und auf der Reise der Riesin. Sie ist sehr schön und hat eine sehr schöne Haltung und einen sehr schönen Gang. Sie ist sehr schön und hat eine sehr schöne Haltung und einen sehr schönen Gang.

Preise der Plätze: Erster Platz 24 fr. Zweiter 12 fr. Dritter 6 fr.
Die Wade ist von 10 Uhr Morgens bis Abends 6 Uhr offen.

Der Schauplatz ist auf dem Pleror vor dem Spittlerthor.

Fig. 11. Gulley & Schmid Menagerie in Nuremberg (1829). "Nature show with live snakes, a large Crocodile from the river Nile and Alligators from the Amazon River, accompanied by a young giantess". Stadtbibliothek Nürnberg, nor. 1152.2° (2.19).

one" ever seen in Europe. In the summer of 1828, John van Dinter was in Vienna for the first time. His menagerie was patronized by the Austrian herpetologist Leopold F. Fitzinger (1802–1884). Fitzinger (1828a) spoke highly of his collection of reptiles and especially mentioned the large python of 24 feet (7.3 meters) as a "true giant". He closely examined all seven

24 July 1829, in L. S. G. Gulley
in N. S. G. Schmid
N. S. G. Schmid



Mit hoher obrigkeitlicher Bewilligung.

Thomas Gulley und Schmid, aus London,
haben die Ehre, die Liebhaber der Naturgeschichte zu benachrichtigen, daß sie in
dieser Stadt mit sehr sehrwichtigen

sechs lebendigen Schlangen
von der seltensten Schönheit angekommen seyen. Dieselben sind:

Die große Klapperschlange aus Amerika.
Die wäre die gefährlichste aller Schlangen, wenn nicht über die Klapperschlange aus Amerika, welche gleichsam genannt wird. Diese Schlange, die sich nach Süden fortbewegt, ist sehr gefährlich. Sie ist in der Gegend, die sie bewohnt, sehr gefürchtet. Sie ist in der Gegend, die sie bewohnt, sehr gefürchtet.

Die Meerschlange aus Amerika.
Sie liegt in Japan 26 Zent.

Der große Boa, mit dem Beinamen: der Erwärger,
von einer außerordentlichen Größe und Dicke.

Die große Anaconda aus Java.
Wenn sie in ihrer vollen Kraft ist, so geht sie auf die wilden Thiere los; erlegt sie um sie, erdrückt sie und macht sie für die Welt; das überlegte Pferd vermag seinen Trümpf nicht zu widerstehen.

Zwei Harlekin-Schlangen der Felsen aus Java,
auch Hauschlange genannt,
haben eine Reihe von verschiedenen Farben, von Kopf bis zum Schwanz.

Ein großes Krokodill.
Dann sind zu sehen:

Zwei Caimans oder Alligatoren vom Amazonasfluß.
Der sich von verschiedenen Orten und sehr gut erhalten, gleich als ob er frisch gefangen wäre.

Die junge Riesin.
Diese junge Riesin ist 7 Fuß 6 Zoll hoch. Sie ist die jüngste und größte von sechs Riesinnen. Der Vater ihrer Mutter wird mindestens 7 Fuß 6 Zoll, er beginnt sie auf ihrer Reise und behält sie gegenwärtig hier. Diese Riesin ist geboren aus China, das England gehört und auf der Reise der Riesin. Sie ist sehr schön und hat eine sehr schöne Haltung und einen sehr schönen Gang. Sie ist sehr schön und hat eine sehr schöne Haltung und einen sehr schönen Gang.

Preise der Plätze: Erster Platz 20 fr. — Zweiter Platz 10 fr. — Dritter Platz 5 fr. C. M.
Kinder unter 10 Jahren zahlen auf dem ersten und zweiten Platz die Hälfte.

Der Anfang ist an Wochentagen von 11 Uhr früh bis 7 Uhr Abends, an Sonn- und Feiertagen aber von 3 Uhr Nachmittag.

Der Schauplatz ist im Prater in der Feuerwerks-Allee, dem Eisvogel gegenüber, links neben dem ersten Ringelspiel.

Fig. 12. Broadsheet from the menagerie of Thomas Gulley & Schmid. It advertises six snakes (rattlesnake, "seasnake" from America, a boa, an anaconda, and a house-snake from Java), one large crocodile, two "caimans or alligators" from the Amazon, and a young female giantess. (The handwritten note indicates that she had departed). The wood-cut depicts the head of the New Zealand Chieftain also advertised by Koppler and van Dinter. Vienna, Prater, 1829 (Wienbibliothek im Rathaus).

giant snakes, displayed under rather fanciful names, such as “die See-Schlange *Boa marina*, die Anakonda aus Java, die Abgott-Schlange, die Harlkin-Schlange, die orientalische Königsschlange”. They all were all *Python molurus*, known as “tiger pythons” and “east Indian boa constrictors” from Java.

Fitzinger (1828a, 1830) criticized the apparent misinformation, the use of lurid names and fantastical information on the geographical origin of the specimens. However, his criticisms were largely ignored and the sensationalistic attributes continued to be used, not only by van Dinter but also by van Aken, Gulley and other menageries. The showmen split between sensationalism and natural history (a practice that continues to this day) The “Schaulust” [literally, “pleasure in looking”] of the public had to be satisfied. Fitzinger also criticized the illustrations on their billboards, as they depicted a python constricting a zebra or a buffalo (Fitzinger 1828a; Koppler, 1827) (see Figs. 9–11).

In 1836 Fitzinger wondered why only “*Asaterophis tigris*” [*Python molurus*] were exhibited and no *Boa constrictor* or “*Eunectes scytale*” [*Eunectes murinus*] from the New World (Fitzinger, 1836). So far, we have not been able to definitely trace any other giant snake species but *Python molurus* in use by the early showmen.

The first boa constrictor at the Berlin Zoo arrived on 21 June 1851 from Saint Lucia, West Indies. That snake, after consuming two rabbits, devoured one of the insulating blankets in the box. These were regurgitated after a good four weeks, with no ill effects (Lenz, 1878). We have little evidence of early importations into continental Europe of live *Eunectes*. However, a family magazine from 1880 documented the display of an anaconda in the Berlin Zoo (Fig. 20).

THE EGG-LAYING GIANTS

Egg-laying by giant snakes became a frequent attribute in popularizing them. One of the earliest documents that described egg-laying is from 1834—an anaconda in a small menagerie in Altenburg (see Lenz, 1878). The 1840 egg-laying of a *Python molurus* at Le Mans fair was advertised in St. Gall by Thomas Gulley in 1841 (Anonymous, 1841) (Fig. 13).

The egg-laying and the brooding behavior of *Python molurus* was observed in 1841 in the Jardin des Plantes, Paris, and meticulously

1226

M. THOMAS GULLEY,
geboren in London,
Eigenthümer einer Menagerie von lebenden Schlangen,
hat die Ehre, dem verehrlichen Publikum seine
**große Sammlung
lebender Schlangen**
zu präsentiren.

Alle diese Schlangen sind von den verschiedensten Gattungen
und von ausnehmender Schönheit, auch ist niemals eine seltenere
Zusammensetzung von Reptilien weder in der Schweiz, noch in
ganz Europa gesehen worden.

Der Eigenthümer wird die Ehre haben, zu zeigen
**die große
BOA**

aus dem Meerbusen von Mexico, 4 Jahr alt, 23 Schuh lang, 160 Pfund schwer. Diese Schlange legte
voriges Jahr in einem Zeitraum von 2 Stunden auf dem Markte zu Mans 32 Eier. Angekommen in
Paris, gingen diese den 8. und 9. August aus; 11 dieser jungen Schlangen wurden von der königlichen
Famille in den Elaischen Feldern besichtigt, 16 derselben wurden in den Jardin des Plantes in Paris, und
die übrigen in die Menagerie nach London gesandt.

Es sind ferner zu sehen:
Die BOA CONSTRICTOR, mit dem Beinamen: Der Erwärger, vom Senegal.
Die ANACONDA, aus Java.
Die Harlequin-Schlange, von den Felsen in Ceylon.
Die BOA BRODIEA, aus Nordamerika.

Zugleich wird sich sehen lassen:
die junge Hannoveranerin.

König Philipp nannte dieselbe die Königin ihrer Rasse, als sie sich demselben in den Tuilleries prä-
sentirte. Sie ist 6 Schuh 6 Zoll lang, 27 Jahr alt, spricht mehrere Sprachen, und macht
sich ein Vergnügen daraus, auf die ihr vorgelegten Fragen zu antworten.

Preise der Plätze: Erster Platz 4 Bogen, Zweiter Platz 2 Bogen.

Fig. 13. Newspaper ad by Thomas Gulley of London, advertising “the great Boa”, which laid 32 eggs during the fair of Le Mans (France), of which eleven young hatched. Also to be seen was a young girl from Hannover, speaking several languages. Tagblatt der Stadt St. Gallen, 247, 21. Oktober 1841, Beilage, S. 1226 (Kantonsbibliothek St. Gallen, Vadiana).



Fig. 14. A woodcut from the inventory of the Menagerie of Hermann van Aken (1831), showing a diversity of its attractions.



Fig. 15. Back cover of the index “The great menagerie of G. Kreutzberg” (formerly van Aken), 1860. The snake handler is a widely used image (e.g., see Fig. 14).

described by Achilles Valenciennes (1794–1868) (Valenciennes, 1841a, b.). On May 5, 1851 a python (*Python* sp.) at the Leipzig Zoo laid 15 eggs and started incubating them, “a sight never seen before by Europeans”. After 56 days the first baby hatched, followed by four more (Anonymous, 1851). Brooding was subsequently described in *Python sebae* in 1862, in London (Anonymous, 1862a-c; Sclater, 1862). Afterwards, this phenomenon became reported more frequently, and the general public became more interested (Murphy and Henderson, 1997). One of the reasons may have been that the number of healthy giant snakes increased as the means by which they were transported and maintained were improved (see Stradling, 1894a; Mendyk, 2022).

As illustration, we summarize a case from 1893 at the Leipzig Zoo (opened 1878). In July, the owner received from Calcutta a shipment of some *Python molurus*. At about the same time, he visited a Hamburg animal dealer (probably Carl Hagenbeck¹) and bought, so to speak, off the boat “some



Fig. 16. Broadsheet from the menagerie of John van Dinter. Vienna (circa 1829?). With three wood-cuts, 58 x 44 cm. (Wienbibliothek im Rathaus). Public domain image.

thirty Python, among them “two giants, measuring over 20 feet (6 meters), already in the status of brooding their eggs in their shipping-crates”. Although carefully handled, one snake abandoned its eggs during the rough railroad transfer from Hamburg to Leipzig. The other female continued her brooding in a box and on July 7, 1893, the first python egg hatched at Leipzig. The same observer added, that at Hagenbeck’s in Hamburg, another 16 foot-python, brooding its 40 eggs, arrived from Calcutta. “The old one and her brood will be shown at Castans Berlin Panoptikum” (Marshall, 1893). These pythons were shipped from Calcutta via the Suez Canal (opened in 1869) and Port Said. Thus, the transport time was less than the earlier routes around South Africa (Leipziger Zeitung, 1893). This route was definitely less strenuous for the snakes and may have positively influenced the development of the eggs, their successful laying, and brooding.

At the Berlin Aquarium, which opened in 1867, giant snakes, pythons, boas and anacondas were popular and

¹Carl Hagenbeck (1844–1913) was a German animal dealer (Hagenbeck, 1912). He was a major importer of exotic fauna that supplied zoos and circuses. In 1907 he founded the Tierpark Hagenbeck at Hamburg-Stellingen (Dittrich and Rieke-Müller, 1998; Rieke-Müller and Dittrich, 1999).



Fig. 17. Notice by J. van Dinter, informing the public that he just received a new shipment of reptiles, including a “Ceylonese rattlesnake and the miraculous Chameleon”, ca. 1830, Vienna, Prater (Wienbibliothek in Rathaus).

always present. The public feeding of the snakes every Wednesday was always well patronized (Brehm, 1872) (Fig. 21). There were regular egg-layings by *Python bivittatus*, but no incubation and hatching (Brehm, 1872; Strehlow, 2002). Nathusius-Königsborn (1883) studied the amnion of some eggs laid in May of 1882.

Hagenbeck (1912) reported receipt in 1904 of a very large “*Python reticulatus*” [*Malayopython reticulatus*] that had been shipped from Singapore. It had laid 103 eggs during its journey, of which 88 hatched. In 1907, another German animal dealer, A. Fockelmann of Hamburg, imported another snake of this species, a female of 8.4 m weighing 250 pounds. Shortly after its arrival, it laid 65 eggs, from which 27 young hatched after an incubation period of 82 days. The python was bought from a German sailor, who brought it from Singapore to Hamburg, to supplement his pay as a sailor. The female and its brood were sold to the Panoptikum at Berlin (K. [sic] 1907; Brehm, 1913). We have not been able to locate illustrations of reptiles in the traveling shows. The first such illustration was published in 1851, accompanying a story of a *Python molurus* brooding her eggs at the Zoologische Garten Leipzig (Anonymous, 1851) and a second one depicts another female *P. molurus* brooding her eggs (Marshall, 1893) (Figs.

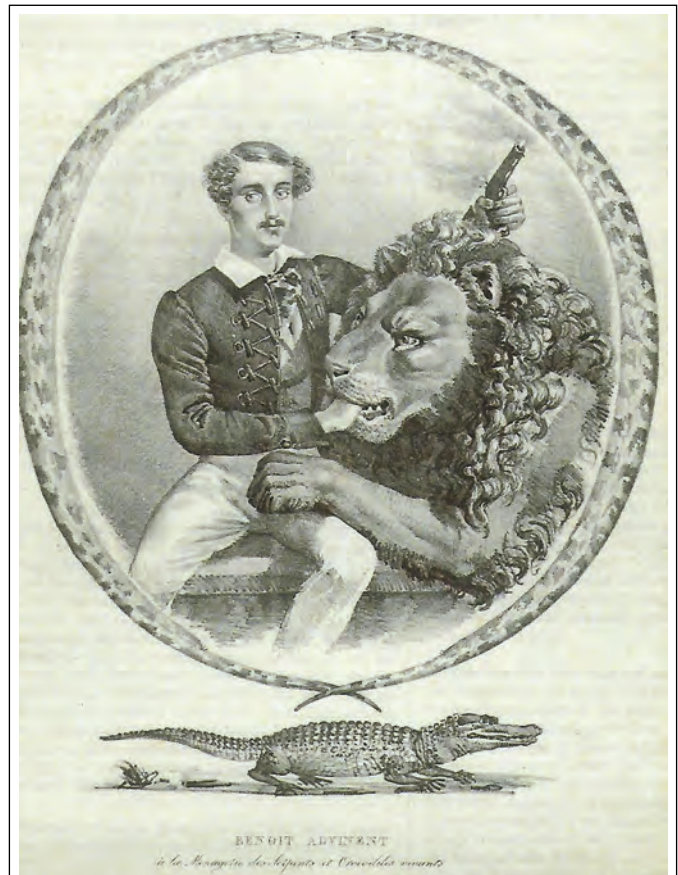


Fig. 18. Benoit Advinent led a famous menagerie throughout Europe from the 1820s through the 1860s. Public domain image.

22 and 23). A third drawing illustrates a female of that species with neonates crawling around her, also from the Leipzig Zoo (Anonymous, 1893) (Fig. 24).

THE RATTLESNAKES

Rattlesnakes were an attractive taxon for the showmen from the beginning; they were of exotic origin and said to be “deadly poisonous”.

In 1824 Thomas Gulley displayed them in Vienna (Austria). In 1828 he showed in Darmstadt (Germany) “a terrible” rattlesnake (*Crotalus horridus*) of about six feet (2 meters). A physician elaborated at length on the fatal impact of the snake’s venom on domestic rabbits (Pommer, 1831). Later, Gulley was in Nuremberg (Rieke-Müller and Dittrich, 1999) and in 1829 he stopped again at Vienna with his rattlesnakes, said to be “safely kept in cages with double grilles” (Anonymous, 1829a). Likewise, Peter Egenolf, who displayed rattlesnakes (*Crotalus* sp.) at the Stuttgart fair of 1858 made it clear that his cage was “under the safe cage-system of double-security” (Martens, 1858).

When Fitzinger (1828a) visited the snake exhibit of van Dinter in Vienna, only the rattlesnakes were properly named, as there was never a discussion on their identity. In particular, he mentioned a South American rattlesnake (*Crotalus duris-*



Fig. 19. Broadsheet from the Menagerie Benedict Advinent, in Nuremberg, 1822. “Among the thousands of animals which the hand of the Almighty has brought to earth, the most admirable and rarest are the crocodile”. The magisterial permit describes two live crocodiles (“Allegatoren”) and an Ichneumon or Pharaoh rat (mongoose), which were seen by His Majesty the King of Bavaria and commented on by Professor Lichtenstein at Berlin. Also mentioned are monkeys and parrots. Stadtbibliothek Nürnberg, nor. 1152.2° (2.19).

sus) of seven feet (2.1 meters) in length, with an extremely large rattle of 2 ½ inches, which he had previously seen in 1826. It is not clear to which species van Dinter was referring in Vienna in the fall of 1828, when he posted that a new shipment of animals had arrived, among them the aforementioned “rattlesnake from Ceylon”. Van Dinter assured the onlookers that the rattlesnakes were exhibited in a “strong iron cage, covered with wire netting” (Anonymous 1829b).

The various “fantasy names”, under which the showmen advertised their snakes, are summarized in Table I.

CHAMELEONS

Among the new arrivals at Vienna in autumn of 1828 was the remarkable chameleon (“*Lacerta Chamaeleon*”) [sic]. According to Fitzinger (1828b), this was the second time a live *Chamaeleon africanus* was shown in Vienna; the first specimen arrived there in 1818 as a gift from a businessman in Trieste. The poster from Leipzig for 1830 announced again the arrival of a large living chameleon (Anonymous, 1830)

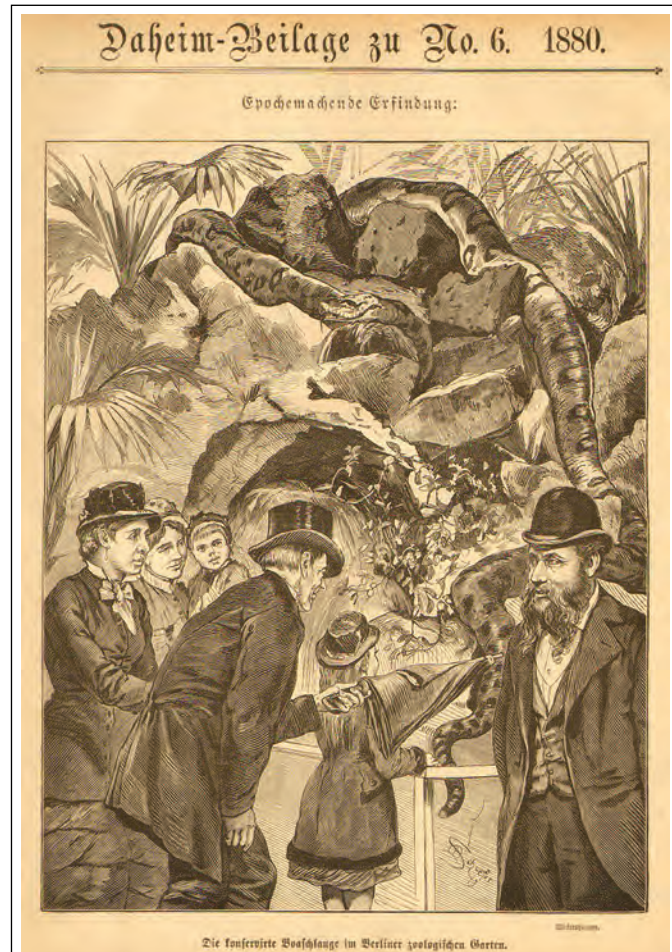


Fig. 20. An anaconda on display at the Berlin Zoo in 1880, as illustrated in a family magazine.



Fig. 21. The public feeding of the giant snakes at the Berlin Aquarium was a major attraction. Drawn from life by E. Schmidt (Brehm, 1872).

(Figs. 17 and 25). Visitors complained when they realized that instead of the promised live specimens only a badly stuffed specimen or in the case of the chameleons, only a bottled preserved specimen was shown. Further information about chameleons in 19th century European collections is available, including on egg laying at the Jardin des Plantes (Paris) and the Schonbrun (Vienna) Zoo (Murphy, 2005).

CROCODILIANS

The first crocodilians exhibited alive in Switzerland could have been the two Nile crocodiles and an American alligator (*Alligator mississippiensis*) exhibited at Bern in 1819 (see Fig. 26): “Two magnificent crocodiles from the river Nile. These ferocious amphibians produce great destruction in their environment. However, the animal on display is tame.” The display included a small “Cayman” [sic] from the banks of the Mississippi. The public was informed that these rare specimens were “on their way to the personal menagerie of the King of Bavaria”. In 1821, an American alligator was in the Menagerie in the Imperial Hofburg in Vienna (Murphy, 2007). In the following years, the majority of the menageries mentioned had crocodilians on display (Anonymous, 1828) (see Figs. 8–12, 19). The bathing of the crocodilians was always advertised as a special event, for which extra admission was asked.

In the “Verzeichniss sämtlicher Tiere” (complete inventory) of the Menagerie von Hermann van Aken (1831) there is a wood-cut of “Der hechtsrüsselige Krokodil (*Alligator Lucius*)”. In 1840 van Aken was at the Prater in Vienna showing a “Krokodillen-Familie von den Ufern des Mississippi-Flusses in Nordamerika” (“crocodile family from the banks of the Mississippi River in North America”). A message in a St. Gall newspaper of 1838 informed the public that in the menagerie of the Austrian Peter Egenolf, two baby Nile crocodiles were on display, which had hatched in Bremen/Germany (Anonymous, 1838). The note is surprising, as egg-hatching with captive crocodilians was not known at that time. It may be possible that the hatching occurred from eggs collected in Egypt, carefully transported to Bremen and incubated there. In 1858 the same menagerie was at the fair in Stuttgart with Nile crocodiles (“*Crocodylus Niloticus*” [sic]), and caimans (“*Crocodylus Lucius*” [sic]) from the Mississippi near Louisiana. The collection also held a large “getäfelte” turtle (“*Testudo tabulate*”) (*Chelonoidis denticulatus*), “the largest of all tortoises”

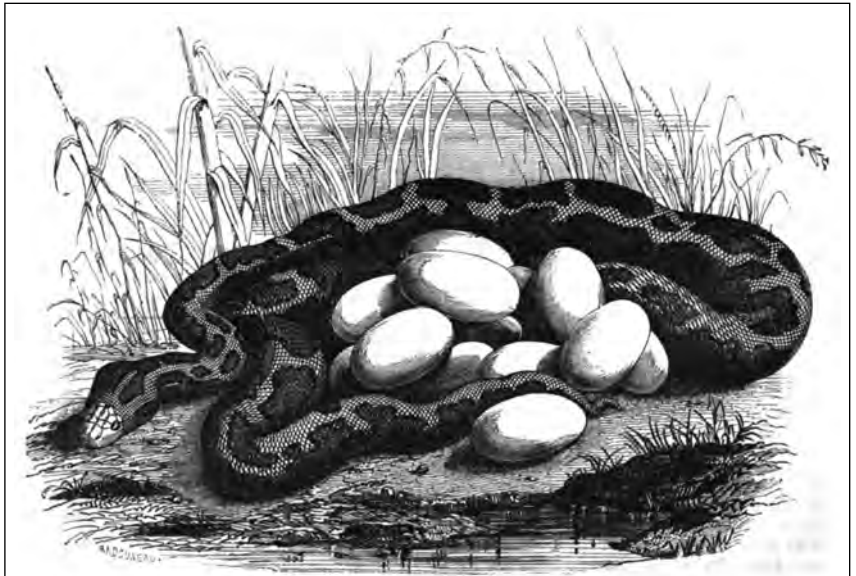
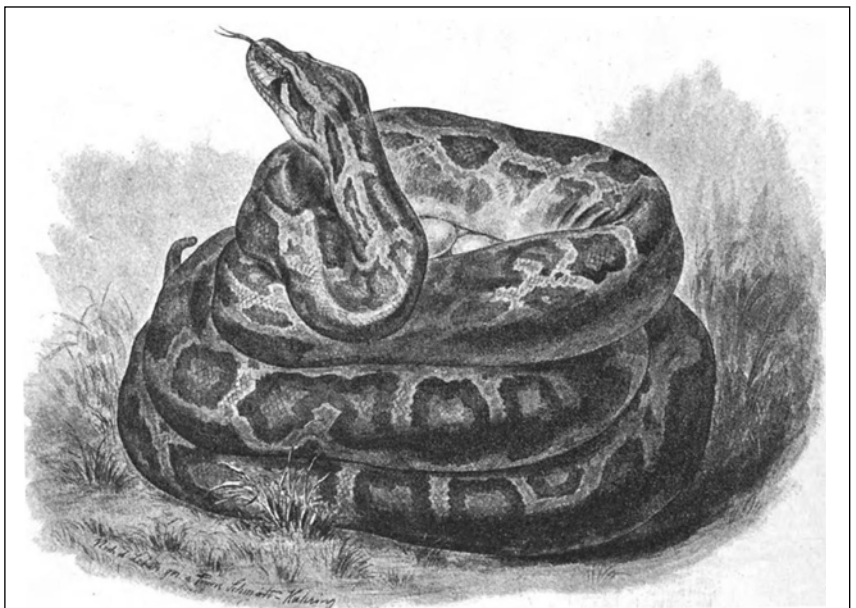


Fig. 22. Python brooding eggs. This image accompanied an 1851 announcement of a *Python* sp. at the Leipzig Zoo that had laid eggs that it incubated until they hatched. Public domain image (Anonymous, 1851).



Eine brütende Python Schlange im Zoologischen Garten zu Leipzig.
Nach dem Leben gezeichnet von Franz Schmidt-Kahring.

Fig. 23. A brooding Python in the Leipzig Zoo, 1893. Drawn from life by Franz Schmidt-Kahring (Marshall, 1893).

(Martens, 1858), and up until then the only tortoise mentioned within any of the menageries.

When in 1823 Benoit Advinent announced that his three live “Crocodiles”, two from Egypt, and one from Brasilia, “were the first to be seen in Europe” (Wolf, 2022), it was one of the exaggerations for which this showman was known. In 1855 Advinent, now associated with Louis Cocchi, published a pamphlet of four pages, in which he vividly describes the capture of a “miraculous giant-crocodile-family, number-

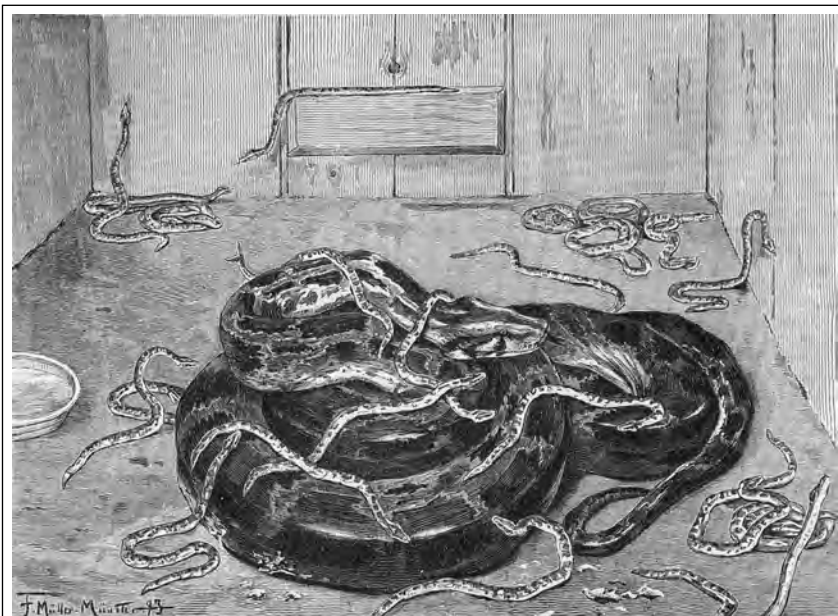


Fig. 24. Python with hatchlings. This image accompanied an announcement of a python with 30 new hatchlings at the Leipzig Zoo, drawn from life by F. Müller-Münster. (Anonymous, 1893). Public domain image.

ing eight specimens, weighing 1200 pounds” (Advinent and Cocchi, 1855) (Fig. 27).

This publication is extremely interesting for various reasons: it is a historical document that reveals general opinions plus superstitions about crocodilians and offers lively details of their capture. The account begins with an expedition to North America by the merchant ship “le Vaillant”; while bathing in the Mississippi River, the captain was seized by an alligator, and barely escaped. The crew captured a female, and when brought on deck, “the crocodile began to shriek so loudly that it lured others who responded similarly from the water”, whereupon the sailors were (with great difficulty) able to capture a large male. Although the captain’s arm had to be amputated, he afterwards undertook another expedition to hunt the “dreadful amphibians”. The men “seized 6 larger, wild crocodiles, but in doing so, they lost the bravest of the sailors, who unfortunately was torn into pieces.” The account is mixed with natural history notes that range from accurate to fantastical, among which we learn that “the voice of this animal is like the bitter weeping of a child, with which they often lure in their prey.” The pamphlet indicated that Advinent and Cocchi were showing these “crocodiles” in Dresden “on their way to Paris”—another draw to attention. Here the beasts were first presented to His Highness the Emperor, where the naturalist Ludwig Reichenbach of Dresden, wrote a recommendation (L. Reichenbach, 1855). The two “American Crocodiles”, Mississippi alligators, of remarkable size were very active. They were of the same species that Advinent had already put on display thirty years earlier. The “crocodiles” were said to be the property of His Majesty the Emperor of Austria, who acquired them for 24,000 fl. for his Menagerie at Schönbrunn, Vienna.

In 1855 the animals were shown by Advinent and Cocchi in Brünn (Anonymous, 1855), again in Vienna in 1862, in Innsbruck in 1864, (Fig. 28), and in Klagenfurt in 1865 (Wolf, 2022). In 1861 two “Crocodiles” (presumably American alligators) hatched during a display at Florence, from eggs which were laid during the boat-transfer from Marseille to Livorno (Wolf, 2022). Advinent and Cocchi commonly advertised the public feeding of their crocodilians as well as giant snakes with live rabbits (Advinent and Cocchi, 1862) (Fig. 28).

UNDERSTANDING THE REPTILES

The successful keeping of reptiles was not part of the showmen’s skills at that time, and reptiles proved very difficult to keep in the early menageries. The reasons were several in number. The reptile trade was largely carried out via various middlemen. The knowledge of the geographical origin and the biological requirements of the so-called “cold-blooded”

animals was only anecdotal. Many died during the weeks-long (and months-long) strain of the sea-voyage (Murphy, 2007; Mendyk, 2022). For those that survived, captivity and the transfer to the final owner of the reptiles, often under sub-optimal temperature conditions, could have a protracted negative effect on the animals’ well-being. Snakes kept under suboptimal thermal conditions commonly became ill and died. The successful acclimatization of reptiles required animals in good physical condition, and a good understanding of the particular reptile’s way of life.

The majority of the announcements describing giant snake displays assured the “esteemed clientele” that their snakes would devour large poultry and rabbits. Occasionally they were advertised to eat large mammals, such as calves, billy-goats, and roebucks. The myth that the horns of the goats would penetrate the snake’s skin after feeding, probably started at that time (Anonymous, 1839). Commonly the showmen insisted, that their kept reptiles could be touched, even by “ladies and children” (Anonymous, 1829b).

CAPTIVITY, DISPLAY, AND MAINTENANCE

Detailed information on how captive reptiles were maintained is scarce. For example, little information is available on the way Vosmaer held his *Crotalus durissus*, other than that he received it via Amsterdam in a small wooden barrel, covered on top with thick lead, in which some holes had been made. He kept the snake on oak bark in a wooden box, which was fitted on top with a sliding lid with thick glass (Bauer and Bell, 2014). Fitzinger (1828a, b, 1833) commented regularly on the menageries while at Vienna, but we were unable to find information on how the snakes were kept.



Fig. 25. Broadsheet by van Dinter, ca. 1830, Leipzig and Nuremberg. Announcing reduced prices for his cabinet of live snakes or serpents, amphibians and mammals, including a large live chameleon, and two large rattlesnakes, 44 x 27.5 cm. (Stadtgeschichtliches Museum Leipzig ST 000560). Anonymous, 1830.

In 1858 Peter Egenolf was with his menagerie at the Stuttgart spring-fair and showed some mammals and birds. The giant snakes (*Python molurus*) from Java were displayed in wooden boxes, wrapped in blankets over heated tubs. Egenolf kept his rattlesnakes in his custom-designed cages, which were divided into two sections by a sliding door. This allowed the handler to lock up the snakes, while cleaning or preparing the food, without getting bitten. (Martens, 1858).

From the few data available, one can assume, that the wooden snake boxes, each with a tin bottom and covered with wire mesh, commonly stood in rooms (guesthouses), huts, or tents, which were heated with small ovens. The reptile boxes stood on shallow tin heating pans, which were heated by a coal

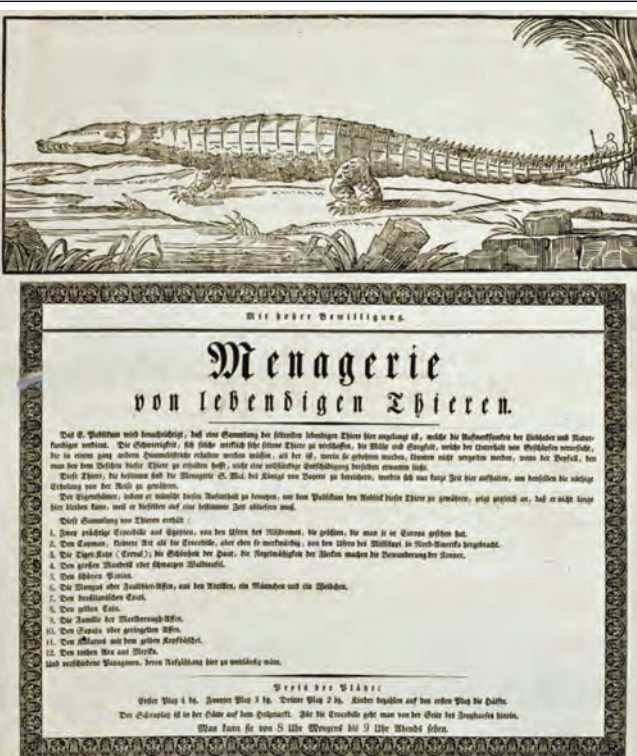


Fig. 26. Broadsheet from 1819 that advertised (among other animals) two magnificent crocodiles from Egypt; “the largest ever seen in Europe and one Cayman from the Mississippi-river in North America” Printed by Ludwig Albrecht Haller, Bern; ca. 46 x 55 cm. (Universitätsbibliothek Bern. MUE DB Hal.: K1:31).

fire. The directory of “the Great Menagerie of G. Kreutzberg” stated that the “*Python tigris*” [sic] “must lie continuously on warm bottles” (Kreutzberg, 1860). When on the road, “tin bedpans” or tin hot-water bottles may have supplied the tropical snakes with a minimum of heat. At the Zoological Society Gardens (London) and the Jardin des Plantes in Paris, Arthur Stradling (1851–1902) described use of cisterns of hot water to heat his enclosures, and blankets and felt to prevent heat loss in the cold exhibit halls (Stradling 1883a, b; Mendyk, 2022). Similar approaches may have been used elsewhere, although we have not located documentation. In the display boxes, the snakes laid in-between isolating cloth or wool blankets. This made it difficult to see the animals. The “show-boxes” reportedly were lined with red velvet (Lenz, 1832). Before a typical performance, i. e. the bathing of the snake, the temperature in the boxes was lowered, which facilitated the handling of the heavy reptiles. However, before an announced public-feeding of the serpents, it was vital to raise the temperature in the box to guarantee the spectacle. The demonstrations of feeding may have taken place in a heated room, in a kind of mini-circus arena, to guarantee ample distance between the snake and the public. With larger specimens, this practice was not without the danger of the snake escaping. An increased entrance fee was charged for this spectacle (Anonymous, 1833).

For a successful demonstration, or in case the promised feeding failed, the presence of an attractive woman was also

Beschreibung des Fanges und der Jagd
der merkwürdigen
Riesen - Krokodil - Familie,
bestehend aus acht Stücken im Gewichte von
1,200 Pfund,
die einzigen bis jetzt
von dieser Größe lebend in Europa
gesehenen, welche dem Publikum in dieser Stadt von den Eigenthümern
Advinent & Cocchi
auf ihrer Durchreise nach Paris nur einige Tage dahier am
Carlsplatz zur Schau gestellt werden.

Diese Krokodile wurden in Dresden von
Sr. Majestät dem Könige
mit größtem Beifall gesehen und schon den 24. Juli wurde von dem Herrn
Hofrath Dr. Reichenbach
ein Artikel über die ungeheuern Amphibien in dem Dresdner Journal
geschrieben.



Augsburg, 1855.
Druck von Geiger.

**Bayerische
Staatsbibliothek
München**

Fig. 27. Cover page from the description of the capture of the crocodile family, presently being displayed. The eight animals were presented to His Majesty the King at Dresden. (Pamphlet published at Augsburg, 1855) (Advinent and Cocchi, 1855).

Heute Nachmittags um 5 Uhr
wird in der Menagerie an der Innbrücke
die
Fütterung
der
Krokodille
und
Schlangen
mit
Fleisch,
Fischen
und lebendigen
Kaninchen
stattfinden;
ein sehr interessanter Anblick, denn diese Thiere essen im Sommer nur selten, im Winter beinahe gar nie.

Wintereintrittspreis während des Tages: I. Platz 25 kr., II. Platz 10 kr. öfter. W.
Während der Zeit der Fütterung ist der Eintrittspreis ohne Unterschied der Plätze
auf 25 kr. öfter. W. festgesetzt.

**Morgen Dienstag, den 15. d. Mts., ist die
Menagerie zum letzten Male geöffnet.**
Advinent & Cocchi.



Fig. 28. In April 1862, the “crocodile family” visited in Innsbruck, Austria. The newspaper ad mentions the feeding of the crocodiles and the snakes with live rabbits.

part of the show. “The most applauded performance was when a beautiful girl appears with a large giant snake wrapped around her slender body” (Lenz, 1878). However, handling giant snakes was not without danger. Lenz described how a “great giant snake” strangled (to death) a young girl called Lucie in the menagerie of James Morson in Edinburgh in the summer of 1851 after the snake was startled by a free-ranging monkey (Lenz, 1878). Brehm (1913) in his *Tierleben* in retrospective portrayed the demonstration emphatically as “when the hair of the simple-countrymen or the city-ladies stood on end”. In his autobiography, Carl Hagenbeck described the hazards of working with enormous snakes, including an incident in Germany in which his adult son was nearly killed by a captive python of more than 20 feet (6 meters) in length (Hagenbeck, 1912, p. 181). Likewise, Arthur Stradling also almost died from being constricted by a large python at the Antwerp Zoological Garden (Stradling, 1894b). It speaks well of the knowledgeable care of John van Dinter that he apparently was able to keep individual rattlesnakes and adult giant snakes alive over a longer period of time (at least from 1829 until 1833). However, given the poor conditions of captivity and inadequate knowledge of how to maintain the reptiles, mortality was high. The showmen countered their financial losses by selling the cadavers to local natural history collectors or museums (Rieke-Müller and Dittrich, 1999).

In the 1870s and 1880s, Johann von Fischer published several notable works on the maintenance of captive turtles and lizards of a variety of species. These included publications on the design of terraria (von Fischer, 1884), recommendations on food and feeding, on husbandry requirements, and on the treatment and prevention of disease (Murphy, 2007). Among these works is his monograph on the capture, transport, and care of *Chameleo chameleon* (von Fischer, 1882).

Nevertheless, high mortality and poor health were major issues affecting care and management of the captive animals (Woods et al. 2018; Mendyk, 2022). For example, Dumeril (1854) reported that of 160 captive chameleons at the Jardin de Plantes, only one lived longer than a year. Likewise, Stradling (1895a) estimated that fewer than 1 in 50 captive snakes survived, even those that sustained no injury during capture. Between 1897 and 1899 the animal dealer Carl Hagenbeck displayed his “Great Reptile show” at Vienna (Dittrich and Rieke-Müller, 1998). As reported by the Austrian herpetologist Franz Werner (1867–1939), many of the establishment’s monitor lizards (*Varanus* sp.) refused to feed, as did some of its crocodilians. Likewise, of more than 100 geckos of the genus *Phelsuma*, only a few survived. The vivarium experienced a “great die off” of its *Python molurus* along with ball pythons, diamond backed snakes, and anacondas. Werner attributed the death of the snakes to cages that were kept at overly high temperatures. Hagenbeck closed the vivarium at the end of the century, as there was no longer sufficient public interest (Werner, 1899).

COLLECTION AND SHIPPING OF THE SPECIMENS

There is little information as to how the large reptiles were collected. Kuhl collected his *Python bivittatus* in 1821 in the vicinity of Buitenzorg/Java “with a fish on the hook” and dissected it thoroughly (Kuhl and van Hasselt, 1822). This method, of course, was not practiced in obtaining live specimens for shipping. In the marshes of India, as described by Hagenbeck (1912), the local people easily caught large snakes in nets during the cool season, when the snakes were numb with cold. Another method was to set fire to an area and catch the escaping snakes in nets. In Borneo, indigenous people would catch pythons (*Malayopython reticulatus*) when they were torpid from ingesting a large meal. A snake would be entangled in a large net, and transferred to a bamboo basket or a large wooden box for transport (Hagenbeck, 1912, p. 90).

In his detailed work on *Chamaeleo chamaeleon*, Johann von Fischer (1882) described the careful means by which the lizards should be captured, and the precise construction of shipping boxes that would maximize their survival during the ocean voyage to Europe. Likewise, he detailed the design of terraria for housing the chameleons upon their arrival.

The protracted sea-voyages from the sub-tropics and tropics to Europe, through different climatic zones and with various stops, usually took months. Little historical data are available on the early methods by which giant snakes and crocodiles were transported. However, the report of a ship's doctor John M'Leod on the transport of a python around 1819 from Borneo to London illustrates the situation aptly. The snake, with a girth of about 45 cm (18 inches) and length of 4.8 meters (16 feet) was kept on the deck of the ship in a wooden crate with a slider, measuring about 1.5 m x 1.5 m x 1.3 m, “a space sufficiently large for him to coil himself round with ease”. Also on board as food were six goats. Feeding the snake became a pastime during the long sea voyage. Nevertheless, near the Cape of Good Hope, the snake began to suffer from the cold weather and it died before reaching St. Helena (M'Leod, 1820). Stradling (1882, 1894) described difficulties encountered during his attempts to transport large snakes.

It is therefore not surprising that many of the giant snakes imported under deplorable conditions survived only a short time after their arrival in Europe and died without feeding. For the survivors, only force-feeding was an option under these circumstances (Stradling, 1895a, b; Bateman, 1897). After the Suez Canal was opened in 1869, the long passage around South Africa was no longer necessary. The *Python molurus* which arrived 1893 at Leipzig Zoo were shipped via Port-Said (Leipziger Zeitung, 1893).

The demand for snakes was high. Brehm (1863–1869) wrote that several hundred specimens arrived alive for the European animal market from East India every year. However, mortality during shipping was also high; many of them succumbed to the caretakers' lack of knowledge, and

to mistreatment, hunger and cold. Ninety years later Dathe (1959) pointed out that of especially large specimens of giant snakes “they have always been the most sought after” and were traumatized by their capture. Under optimal conditions, they could recover from it during the long sea voyage, but the stress on arrival did not let “the tough” animals survive for long, especially in the early times before veterinary medicine took care of the reptiles.

Even though the animals “were carefully handled on the journey from Haiti to Vienna”, only one of the six American crocodiles (*Crocodylus acutus*) survived. In 1821 this was the first crocodile to be shown alive in Vienna (Fitzinger, 1821). Hagenbeck (1912, p. 201) tried repeatedly to import young gharials (*Gavialis gangeticus*) from India, but they never survived the journey.

Alfred Edmund Brehm, the first director of the Berlin Aquarium, financed collectors for exotic turtles, crocodiles, lizards, and snakes and instructed them carefully never to ship the animals without a reliable escort. For the shipment on steamers or express-boats, he instructed collectors to use wood crates only, with ample air-holes. Shipments scheduled to arrive between November and March were to be avoided (Strehlow, 2002).

Werner (1900) described the arrival of some giant snakes “which had a difficult life during their long sea-voyage” at Hagenbeck's Tierpark at Hamburg. Before he opened a special facility to accommodate the newly arrived reptiles, the boas and python were kept in their shipping crates and the anacondas in large barrels in a heated shed and given a bath.

In sum, during capture and shipping, mortality of the animals was extremely high. The mortality rates can be estimated from information on the Hagenbeck firm. Between 1866 and 1886, the firm is said to have shipped and sold thousands of crocodiles and large snakes (chiefly boas and pythons) along with mammals and birds that numbered in the tens of thousands (Reichenbach, 1996; Parker, 2021). According to estimates based on this time frame, during capture and transport ten animals may have perished for each one put on display, and one-third of the captive animals on display expired each year (Baratay and Hardouin-Fugier, 2004). For snakes, lizards, and crocodilians that survived shipping, mortality during their subsequent captivity is described further above.

EDUCATION

For the laypeople, the reptile shows were not only a way to satisfy their curiosity. The regular performance of exotic species in city markets and fairs also triggered the spectators' interest to learn more. Enterprising showmen, like Herman van Aken (1831) and G. Kreutzberg (1860), issued their own inventory and guidebook to their menageries. Despite their use of fictional names for their animals and false information given by the animals' handlers, these publications can be considered as important early tools in natural history education. For example, Kreutzberg's (1860) insistence that the giant

snakes, “must lie continuously on warm bottles” informed readers about the snakes’ need for heat, as did Stradling’s several publications on the need for warm temperatures in snake facilities (Stradling, 1883a, b, 1895b).

Among the popular books on natural history were the thirteen illustrated volumes of *Allgemeine Naturgeschichte für alle Stände*, 1836 by Lorenz Oken (1779–1851) (Oken, 1836). The country people learned about exotic wildlife from their popular family almanacs.

PRIVATE REPTILE KEEPING

Around 1850, Rudolf Effelt (1821–1876), a private citizen “der berühmte Amphibiologe” (“the famous amphibologist”), started a remarkable private collection of live reptiles in Berlin (Rieck and Hinkel, 2012). This collection included eight crocodilians, 27 aquatic chelonians, 20 snakes, and various amphibian species (Effelt, 1873). The most remarkable crocodile was a *Crocodylus moreletti* with a length of 3.4 m., which he received in a trade for rare reptiles and a specimen of the newly described “*Cinosternon effeldti* (Peters, 1873)” [*Kinosternon acutum* Gray 1831] from Professor August Dumeril (1812–1870) in Paris. Also noteworthy was a *Boa imperator* of 3.4 m, a *Crotalus adamanteus*, a *Crotalus horridus*, and several *Proteus anguinus*. Effelt’s information on the keeping of his animals is meager, but it offers insight into the methods of those days (Effelt, 1873). The reptiles were kept in cages and troughs in one large room, arranged around a broad coal-heated stove. The stove was heated twice each day during the wintertime; for the rest of the year, one daily heating sufficed. There is no other information available on their maintenance. Effelt’s observations were published by Lenz (1870) and Brehm (1863–1869).

CONCLUDING REMARKS

With regard to the introduction of reptiles from abroad into continental Europe, the 16th century through the 19th century represents an important time frame. During this time period, as documented in this paper, the public at large gained direct exposure to a variety of reptilian species, including forms otherwise known from questionable and exaggerated reports by travelers to distant lands (Goldsmid, 1886; Gould, 1989). A trajectory can be traced from the early natural history cabinets (with their preserved specimens) to the travelling entertainers with their living reptiles, to the wandering menageries, and to the carnivals and fairs (Rieck-Müller and Dittrich, 1999; Impsey and MacGregor, 2017; Parker, 2021). These phenomena in turn eventually led to establishment of elaborate fixed displays (Werner, 1899) and private collections (Rieck and Hinkel, 2012) and to zoological gardens, museums, and early zoos (Findlen, 1994; Grinke, 2006; Murphy, 2007).

While a growing body of literature has considered points along this trajectory, most of it has focused on mammals and birds (Swainson, 1838; Cockram and Wells, 2017; Stockhorst

et al., 2021), with an emphasis on England (Bennett, 1829; Rennie, 1829; Huish, 1830; Velten, 2013; Plumb, 2015; Grigson, 2016; Tait et al., 2016). From a herpetological standpoint, the historical introduction of reptiles into continental Europe clearly deserves similar attention and offers a fruitful subject for further investigation by the scholarly community.

ACKNOWLEDGEMENTS

For providing useful information and assistance, the senior author thanks K. Balmer (Zürich), Dr. W.-E. Engelmann (Leipzig), W. Göldi (St. Gall), F. Gut (Birchwil), P. Müller (St. Gall), Drs. F. C. and J. Röhmer (Kilchberg), Dr. H. Strelow (Berlin), and F. Schmidt (Basel). We gratefully acknowledge Robert Wein and the Stadtmuseum Berlin for providing the color image of Paul Friedrich Meyerheim’s 1864 painting “Menagerie”. We also are grateful to Robert W. Mendyk (Audubon Zoo, New Orleans), Michael Kroniger (Minden, Germany), and Josef Schmidler (Munich) for careful reviews of the submitted manuscript, and to Breck Bartholomew for invaluable editorial assistance.

Archives consulted: Universitätsbibliothek Bern, Switzerland, Kantonsbibliothek St. Gall, Vadana, St. Gall, Switzerland, Wienbibliothek im Rathaus, Vienna, Austria, Stadtbibliothek Nuremberg, Germany, Stadtgeschichtliches Museum Leipzig, Germany, and Private Archive of René E. Honegger.

REFERENCES

- Abbing, M. R. 2006. *Rembrandt’s Elephant. The Story of Hansken*. Amsterdam. 57 p.
- Adler, K. 2012. Ed., *Contributions to the History of Herpetology*. Vol. 3. Society for the Study of Amphibians and Reptiles, Ithaca, New York. 564 p.
- Advinent, B. 1826. Anzeige. *Wiener Zeitung*, 5. Oktober 1826.
- Advinent, B. and L. Cocchi. 1855. Beschreibung des Fanges und der Jagd der merkwürdigen Riesen-Krokodil-Familie, bestehend aus acht Stücken im Gewichte von 1,200 Pfund, die einzigen bis jetzt von dieser Grösse lebend in Europa gesehen, [...] von Advinent & Cocchi auf ihrer Durchreise nach Paris, zur Schau gestellt werden. Augsburg, 4 p.
- Advinent, B. and L. Cocchi. 1862. Fütterung der Krokodile und Schlangen. *Innsbrucker Nachrichten*, Innsbruck, 85. 14. April 1862.
- Advinent, B. and M. Zaneboni. 1844. Verzeichniss sämmtlicher [sic] Thiere welche sich in der Menagerie von Advinent & Zaneboni befinden, nebst einer kurzen Beschreibung der merkwürdigeren, und ihrer Lebensweise. Wien, 16 p.
- Anonymous. 1828. Koninklyke Menagerie von Martin et Comp. Poster, printed by Ludwig Albrecht Haller, Bern. Universitätsbibliothek Bern, sig. MUE DB Hal: K 1:13.
- Anonymous 1829a. Thomas Gulley and Schmid, aus London haben die Ehre, die Liebhaber der Naturgeschichte zu benachrichtigen, dass sie mit sechs lebendigen Schlangen angekommen seyen. Poster, Vienna. Wienbibliothek im Rathaus, Vienna.
- Anonymous. 1829b. Grosse königl. Niederländische Menagerie und Schlangen-Sammlung von J. Dinter. *Der Erzähler, St. Gallen*, 27. Mai 1829.

- Anonymous. 1830. Herabgesetzte Preise zu dem Cabinet lebendiger Schlangen. Leipzig. *Städtisches Museum Leipzig*, ST 000560.
- Anonymous. 1832. Inserat in: *St. Galler-Zeitung*, 26. Mai 1832.
- Anonymous. 1833. Inserate und Anzeigen. *Der Erzähler; St. Gallen*, 38 3. Mai 1833; *St. Galler-Zeitung*, *St. Gallen* 15. Mai 1833.
- Anonymous. 1836. Ausserordentliche Nachricht. Poster, printed by Haller, Bern. Universitätsbibliothek Bern, sig. MUE DB Hal.
- Anonymous. 1838. Die Amphibien Sammlung des Herrn Egenolf. *St. Galler-Zeitung*, 25. Mai 1838.
- Anonymous. 1839. Ausland. *Der Erzähler; St. Gallen* 84, 18. Oktober 1839.
- Anonymous. 1840. Anzeige. *Intelligenzblatt für die Stadt Bern* 7, 91:11. November 1840.
- Anonymous. 1841. *Inserat*, *St. Galler Tagblatt*, *St. Gallen* 21. Oktober 1841.
- Anonymous. 1842. M. Thomas Gulleys Schlangen. *Der Schweizer Bote*, Aarau 76:25. Juni 1842.
- Anonymous. 1851. Eine brütende Schlange. *Das Pfennig-Magazin*, Leipzig, Nr. 430:99–101.
- Anonymous. 1855. Wahre und einzige zoologische Seltenheit! Krokodile. Neuigkeiten, Brunn, 1. Juni 1855.
- Anonymous. 1862a. Scientific intelligence: The incubating python at the Zoological Gardens. *The London Review*, March 8:244–245.
- Anonymous. 1862b. The python experiment. *The London Review*, March 15:270.
- Anonymous. 1862c. The incubating python at the Zoological Gardens. *The London Review*, March 22:292.
- Anonymous. 1893. Die Riesenschlangenfamilie im Zoologischen Garten Leipzig. Die Gartenlaube, with a drawing by nature by F. Müller-Münster:740.
- Anonymous. 1944. Circus database Herman Linssen (c05394t/c05957). Allard Pierson Theatersammlung. University of Amsterdam.
- Anonymous. 2020. Wertvolle Bücher, Autographen, Illustrierte Werke und Graphik, 59. Verkaufsausstellung 2020, Württembergischer Kunstverein, Stuttgart. Messekatalog, 231 p.
- Baratay, E. and E. Hardouin-Fugier. 2004. *Zoo: A History of Zoological Gardens in the West*. Reaktion Books, London.
- Bateman, G. C. 1897. *The Vivarium*. L.U. Gill, London. 424 p.
- Bauer, A. M. and C. J. Bell. 2014. Arnout Vosmaer and the Herpetological Parts of the Regnum animale. *Bibliotheca Herpetologica* 11:5–41.
- Bennett, E.T. 1829. *The Tower Menagerie: Comprising the Natural History of the Animals Contained in that Establishment with Anecdotes of their Characters and History*. R Jennings, London.
- Bowry, S. 2014. Before museums: the curiosity cabinet as metamorphe. *Museological Review* 18:30–42.
- Brehm, A. 1863–1869. *Illustriertes Thierleben – Eine allgemeine Kunde des Thierlebens*, 6 Bände, Hildesburghausen.
- Brehm, A. E. 1872. Die Riesenschlangen im berliner [sic] aquarium. *Leipziger Illustrierte Zeitung*, 58:252–253.
- Brehm, A. E. 1913. *Brehms Tierleben. Allgemeine Kunde des Tierreichs*, Vol. 2, Lurche und Kriechtiere. Leipzig & Wien, 598 p.
- Brongersma, L. D. 1961. Notes upon some sea turtles. *Zoologische Verhandelingen Rijksmuseum Natuurlijke Historie*, Leiden 51:1–46.
- Brönnimann, S. and D. Krämer. 2016. Tabora oder “das Jahr ohne Sommer”, 1816. Klima, Mensch und Gesellschaft. Geographica Bernensia, Bern.
- Cockram, S. and A. Wells (eds.). 2017. *Interspecies Interactions: Animals and Humans between the Middle Ages and Modernity*. Routledge, London.
- Dathe, H. 1959. Erstaunliche Lebensfähigkeit einer Riesenschlange. *Bijdragen tot de Dierkunde* 29:71–72.
- Dittrich, L. 2007. Der Import von Wildtieren nach Europa. Einführen von der frühen Neuzeit bis zur Mitte des 20 Jahrhunderts. Pp. 1–64, in: H. Pechlaner, D. Schratter, and I. Heindl (eds.), *Tiere unterwegs, Historisches und Aktuelles über Tiererwerb und Tiertransporte*. Tiergarten Schönbrunn Geschichte, Vienna. 240 p.
- Dittrich, L. and A. Rieke-Müller. 1998. Carl Hagenbeck (1844–1913). Tierhandel und Schaustellungen im Deutschen Kaiserreich. Peter Lang, Frankfurt am Main. 356 p.
- Duméril, A. H. A. 1854. Notice historique sur la ménagerie des reptiles du Muséum d’histoire naturelle et observations qui y ont été recueillies. *Archives du Muséum d’histoire Naturelle* 7:193–320.
- Effelt, R. 1873. Die Reptiliensammlung der Herren Effelt und Wagenführ. *Der Zoologische Garten*, Frankfurt/M. 14:66–70.
- Ehrenzeller, P. 1825. Miszellen. *Jahrbuch der Stadt St. Gallen* 1824.
- Ehrenzeller, P. 1833. Miszellen. *Jahrbücher der Stadt St. Gallen* 1828–1832; from Vol. 2:1828.
- Engel, H. 1886. Hendrik Engel’s alphabetical list of Dutch zoological cabinets and menageries, 2nd ed. In: P. Smit, A. P. M. Sanders, and J. P. F. van der Veer (eds.). *Nieuwe Nederlandsche bijdragen geschiedenis geneeskunde natuurwetenschappen* 19:1–340. Rodopi B.V., Amsterdam.
- Engelmann, W.-E. 2012. Zur Geschichte der Haltung von Riesensalamandern in Europa. *Sekretär; Mannheim* 12 (1/2):3–23.
- Faust, I. 1998. *Zoologische Einblattdrucke und Flugschriften vor 1800*, Vol. 1. Stuttgart. 300 p.
- Findlen, P. 1994. *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*. University of California Press, Berkeley.
- Fitzinger, L. F. 1821. Einiges über den unlängst aus Haiti St. Domingo lebend erhalten Krokodil. *Wiener Zeitschrift für Kunst, Literatur, Theater und Mode* 98:825–827.
- Fitzinger, L. F. 1828a. Über die Menagerie der Herren van Aken und Martin, und des Hrn van Dinter. *Wiener Zeitschrift für Kunst, Literatur, Theater und Mode*, 79:646–647; 81:661–663.
- Fitzinger, L. F. 1828b. Über die Vermehrung der van Dinterschen Menagerie. *Wiener Zeitschrift für Kunst, Literatur, Theater und Mode* 127:1034.
- Fitzinger, L. F. 1830. Hrn. Advinent’s Menagerie ausser dem Rothenthurmthore. *Wiener Zeitschrift für Kunst, Literatur, Theater und Mode* 130:1053–1056.
- Fitzinger, L. F. 1833. Van Aken Menagerie in Wien im Jahr 1833. *Wiener Zeitschrift für Kunst, Literatur, Theater und Mode* 54:443–444.
- Fitzinger, L. F. 1836. Tourniaire’s Menagerie. *Wiener Zeitschrift für Kunst, Literatur, Theater und Mode* 72:575, 583, 598–599.
- Fitzinger, L. F. 1853. *Versuch einer Geschichte der Menagerien des österreichisch-kaiserlichen Hofes mit besonderer Berücksichtigung der Menagerie zu Schönbrunn nebst einer Aufzählung der in denselben gehaltenen Thiere von der ältesten bis auf die neueste Zeit*. Wien, 198 p.
- Gessner, C. 1551–1587. *Historiae Animalium*. Five volumes. 1551. Liber I. de quadrupedibus viviparis. Zürich (Froschauer).
- Goldsmid, E. 1886. *Un-natural History: Or Myths of Ancient Science; Being a Collection of Curious Tracts on the Basilisk, Unicorn, Phoenix, Behemoth or Leviathan, Dragon, Giant Spider, Tarantula, Chameleons, Satyrs, Homines Caudati, &c. Now First Tr. from the Latin, and Ed., with Notes and Illustrations* (Vol. 15). Edinburgh.
- Gould, C. 1989. *Mythical Monsters*. Crescent Books, New York.

- Grigson, C. 2016. *Menagerie: The History of Exotic Animals in England, 1100–1837*. Oxford University Press, New York.
- Grinke, P. 2006. *From Wunderkammer to Museum*. Revised edition. Quaritch, London.
- Hagenbuch, J. C. 1727. Beschreibung Der in dem Heü und AugstMonath 1827 gethanen Schweitzer Reiss. Manuskript, 299 S. Kantonsbibliothek St. Gall, Vadiana, VadSlg Ms 495.
- Hagenbeck, C. 1912. *Beasts and Men*. (H. S. R. Elliot and G. Thacker, abridged translation). Longmans, Green & Co., London and New York).
- Heierli, H. 1996. *Geschichte des Naturmuseums St. Gallen*. Naturmuseum St. Gallen. 37 p.
- Honegger, R. E. in press. Der Zoo in den Haldenhäusern von Trogen—Der erste öffentliche Zoo in der Ostschweiz. *Appenzellische Jahrbücher*. Herisau.
- Huish, R. 1830. *Wonders of the Animal Kingdom: Exhibiting Delineations of the Most Distinguished in the Various Menageries of This Country*. Thomas Kelly, London.
- Impey, O. and A. MacGregor. 2017. *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*. Univ. of Oxford.
- K. [sic] 1907. Riesenschlangen in der Gefangenschaft ausgebrütet! *Blätter für Aquarien- und Terrarienfrenunde*, Marburg 18:498–499.
- Koppler, A. 1827. Ausserordentliche Amphibien-Sammlung, Bern. printed by Ludwig Albrecht Haller, Bern. Universitätsbibliothek Bern, MUE DB Hal.: K 1:2.
- Kreutzberg, G. 1860. *G. Kreutzberg's grosse Menagerie (vormals van Aken). Verzeichnis sämtlicher Thiere, welche sich in dieser Menagerie befinden, nebst einer kurzen Beschreibung der merkwürdigeren und deren Lebensweise*. Neustadt-Magdeburg. 35 p.
- Kuhl, H. and van Hasselt, C. 1822. Aus einem Schreiben von Dr. Kuhl und Dr. van Hasselt aus Java, an Professor Th. Van Swinberen zu Groningen. *Isis von Oken* 10:472–476.
- Lenz, O. 1832. *Schlangenkunde*. Gotha, 832 p. (second Edition 1870).
- Lenz, O. 1870. *Schlangen und Schlangenfeinde*, 2nd edition. Gotha.
- Lenz, H. O. 1878. *Gemeinnützige Naturgeschichte, 3: Die Reptilien, Amphibien, Fische und wirbellose Tiere*; bearbeitet von O. Burbach. Gotha, 668 p.
- Leipziger Zeitung. 1893. Brütende Riesenschlange. Der Zoologische Garten, Frankfurt/M. 34:319–320.
- Linnaeus, C. 1758. *Systema naturae*. 10th ed. Laurentius Salvius, Stockholm.
- Maehly, J. 1867. *Die Schlange im Mythos und Cultus der Classischen Völker*. C. Schulze, Basel.
- Marschall, C. 2016. Affentheater im Wurstelprater. Wiener Zeitung, 22. April 2016.
- Marshall, W. 1893. Brütende Schlange. Leipzig Illustrierte Zeitung, 2610, 8. Juli 1893:57.
- Martens, G. von 1858. II. Aufsätze und Abhandlungen. 1. Noch eine Menagerie. *Jahreshefte des Vereins für Vaterländische Naturkunde in Württembergs, Stuttgart*, 15:52–64.
- Mauriès, P. K. 2002. *Cabinets of Curiosities*. Thames & Hudson, London.
- Mendyk, R. W. 2022. A peculiar case of ophiomania: the herpetological pursuits, contributions and advocacy of Arthur Stradling (1851–1902). *Bibliotheca Herpetologica*, 16:14–32.
- M'Leod, J. 1820. *Voyage of His Majesty's Ship Alceste, Along the Coast of Corea to the Island of Lewchew, with an Account of Her Subsequent Shipwreck*. John Murray, London.
- Müller, L. S. 1774. *Des Ritters Carl von Linné vollständiges Natursystem nach der zwölften lateinischen Ausgabe mit einer ausführlichen Erklärung, in sechs Teilen*. Nürnberg.
- Murphy, J. B. 2005. Chameleons: Johann von Fischer and other perspectives. *Herpetological Circular* 33. Society for the Study of Amphibians and Reptiles. 123pp.
- Murphy, J. B. 2007. *Herpetological History of the Zoo and Aquarium World*. Kreiger, Malabar, Florida. 327 pp.
- Murphy, J. B. 2013. Deadly encounters by and to crocodilians depicted in historical illustrations and accounts. Part 1. *Herpetological Review* 44:196–207.
- Murphy, J. C. and R. W. Henderson. 1997. *Tales of Giant Snakes: A Historical Natural History of Anacondas and Pythons*. Krieger Publ., Malabar, Florida.
- Nathusius-Königsborn, W. v. 1883. Die Eihaut von *Python bivittatus*. *Zeitschrift für wissenschaftliche Zoologie*, Leipzig 38:584–620.
- Oken, L. 1836. *Allgemeine Naturgeschichte für alle Stände*, 6: *Thierreich, dritter Band: Amphibien oder Lurche*. Stuttgart Hoffman'sche Verlags-Buchhandlung. 698 p.
- Parker, M. 2021. The genealogy of the zoo: collection, park and carnival. *Organization* 28:604–620.
- Pérez de Tudela, A. and A. J. Gschwend. 2007. Renaissance menageries: Exotic animals and pets at the Habsburg courts in Iberia and Central Europe. Pp. 419–447 in: *Early Modern Zoology: The Construction of Animals in Science, Literature and the Visual Arts* (K.A.E. Enenkel and P.J. Smith, eds.). Brill, Leiden.
- Pieters, F. F. J. M. 2001. The menagerie of “The White Elephant” in Amsterdam, with some notes on other 17th and 18th century menageries in The Netherlands. Pages 47–66 in: *Die Kulturgeschichte des Zoos*. (L. Dittrich, ed.). VWB-Verlag, Berlin.
- Plumb, C. 2015. *The Georgian Menagerie: Exotic Animals in Eighteenth-Century London*. Tauris, London.
- Pommer, C. F. 1831. Ein Beitrag zur Geschichte des Klapperschlangenbisses. *Beiträge zur Natur- und Heilkunde* 1:1–10. Marburg.
- Reichenbach, H. 1996. A tale of two zoos: the Hamburg Zoological Garden and Carl Hagenbeck's Tierpark. Pp. 51–62, in: R. Hoage and W. Deiss (eds.) *New Worlds, New Animals: From Menagerie to Zoological Park in the Nineteenth Century*. Johns Hopkins University Press, Baltimore.
- Reichenbach, L. 1855. Die amerikanischen Krokodile. *Dresden Journal* 169, 24. Juli 1855.
- Rennie, J. 1829. *The Menageries. Vol. 1 Quadrupeds*. Ch. Knight, London.
- Rieck, W. and A. Hinkel 2012. Ein fast vergessener, früher Terrarianer und Feldherpetologe aus Berlin: Rudolf Effelt 1821–1876. *Sekretär, Mannheim* 12 (1/2):65–80.
- Rieke-Müller, A. and L. Dittrich 1999. Unterwegs mit Tieren – Wandermenagerie zwischen Belehrung und Kommerz 1750–1850. Marburg/Lahn, 171 p.
- Rookmaaker, L. C. 1998. *The Rhinoceros in Captivity*. SPB Academic Publications, The Hague, Netherlands. 389 p.
- Scheitlin, P. 1833. In: Nachlass, Kantonsbibliothek Vadiana, St. Gall. NL 204.
- Schinz, H. R. 1833–1835. Naturgeschichte und Abbildungen der Reptilien [nach den neuesten Systemen]. K. J. Brodtmann, Schaffhausen.

- Sclater, P. L. 1862. Notes on the incubation of *Python sebae*, as observed in the Society's Gardens. *Proceedings of the Zoological Society of London* 1862:365–368.
- Stradling, A. 1882. Snake-anecdotes. In two parts. Part I. *Chambers' Journal* 19(966):414–417.
- Stradling, A. 1883a. On the treatment of snakes in captivity. *The Zoologist* 7(74):61–68.
- Stradling, A. 1883b. On the treatment of snakes in captivity. *The Zoologist* 7(75):103–114.
- Stradling, A. 1894a. How I keep snakes. Part I. The Boy's Own Paper 16(809):652–654.
- Stradling, A. 1894b. A bad five minutes with a python. Part III. *The Boy's Own Paper* 17(823):46–47.
- Stradling, A. 1895a. Serpent-feeding. *Knowledge* 18:1–3.
- Stradling, A. 1895b. Snakes in captivity: A talk with Dr. Arthur Stradling. *The Sketch* 9(110):303–304.
- Strehlow, H. 2002. Die Amphibien und Reptilien des Berliner Aquariums. *Beiträge zur Literatur und Geschichte der Herpetologie und Terrarienkunde, Frankfurt/M.* 2:15–28.
- Stockhorst, S., J. Overhoff, and P. J. Corfield (eds.). 2021. *Human-Animal Interactions in the Eighteenth Century: From Pests and Predators to Pets, Poems and Philosophy*. Brill, Boston.
- Swainson, W. 1838. *Animals in Menageries*. Longman et al., London.
- Tait P., M. Boyde and F. Probyn-Rapsey. 2016. *Fighting Nature: Travelling Menageries, Animal Acts and War Shows*. Sydney University Press, Sydney.
- Valenciennes, M. 1841a. Observations faites pendant l'incubation d'une femelle python à deux raies *Python bivittatus* (Kuhl) pendant les mois de mai et de juin 1841. *Compte Rendu des Séances de l'Académie des Sciences*. 2ème semestre, 19. Juillet 1841:126–133.
- Valenciennes, A. 1841b. Observations faites pendant l'incubation d'une femelle python à deux raies *Python bivittatus* (Kuhl) pendant les mois de mai et de juin 1841. *Annales des Sciences Naturelles*, 2nd ser. Paris 16:65–72.
- van Aken, H. 1831. Verzeichniss sämtlicher Thiere, welche sich in der Menagerie von Hermann v. Aken befinden, nebst einer kurzen Beschreibung der merkwürdigeren und ihrer Lebensweise. Münster, 25 p.
- van Aken, C. S. 1836. Menagerie C. S. van Aken, Leipzig. *Schaustellerzettel*, 9. Mai 1836.
- Van Dinter. 1826. Nachricht an das geehrte Publikum, über mein Cabinet merkwürdiger lebender Schlangen. Nürnberg. Stadtbibliothek Nuremberg, nor. 2152.2° (2.19).
- Velten, H. 2013. *Beastly London: A History of Animals in the City*. Reaktion Books, London.
- Vogel, J. J. 1756. Leipzigerisches Geschicht-Buch, oder Annales das ist: Jahr-und Tage-Bücher Der Weltberühmten Königl. und Churfürstl. Sächsischen Kauff-und Handels-Stadt, Leipzig.
- von Fischer, J. 1882. Das Chamäleon (*Chamaeleo vulgaris*), sein Fang und Versandt, seine Haltung und seine Fortpflanzung in der Gefangenschaft. *Der Zoologische Garten, Frankfurt/M.*, 23:4–13, 39–48, 70–82 [in 3 parts].
- von Fischer, J. 1884. *Das Terrarium, seine Bepflanzung und Bevölkerung: ein Handbuch für Terrarienbesitzer und Tierhändler*. Mahler & Waldschmidt, Frankfurt/M.
- von Schlosser, J. von, 1918. Die Kunst- und Wunderkammern der Spätrenaissance: ein Beitrag zur Geschichte des Sammelwesens. Klinckschardt & Biermann, Leipzig.
- Werner, F. 1899. Das Wiener Vivarium am Ende. *Der Zoologische Garten, Frankfurt/M.*, 40:33–38.
- Werner, F. 1900. Riesenschlangen in Gefangenschaft. *Der Zoologische Garten, Frankfurt/M.*, 41:233–242; 274–287.
- Wolf, H. M. 2022. Advinents Affentheater. Kunst und Kultur im Austria-Forum.
- Woods, A. 2018. Doctors in the Zoo: Connecting Human and Animal Health in British Zoological Gardens, c.1828–1890. Pp. 27–62, in A. Woods, M. Bresalier, A. Cassidy, and R. M. Dentinger (eds) *Animals and the Shaping of Modern Medicine*. Springer Nature/Palgrave Macmillan, Cham, Switzerland.
- Ziegler, E. 1974. Aus dem alten St. Gallen. Von Soeldnern, Frowenwirthen, Tabacktrinkhern und Comoedianten. Reihe "z'Sanggale" 1825, 4, St. Gallen, 72 S.

We suggest the following format for citing this article:

Honegger, R. E. and D. G. Blackburn 2022. The Arrival of the Dragons of our Forefathers, or Some Remarks on Early [non-English] European Encounters with Exotic Reptiles. *Bibliotheca Herpetologica* 16(9):94–117.



International Society for the History and Bibliography of Herpetology

Bibliotheca Herpetologica Vol. 16

Formerly the *International Society for the History and Bibliography
of Herpetology Newsletter and Bulletin*

Contents

From the Chairman	i
From the Editor	i
About the Cover	i

Articles

Bettelheim, M. P. – Flânerie or Flimflammy? – The Urban Myth of the Flâneur and Turtle-Walking.	1
Mendyk, R. W. – A Peculiar Case of Ophiomania: The Herpetological Pursuits, Contributions and Advocacy of Arthur Stradling (1851–1902).	14
Maynard, R. J. – Book Review. On the Backs of Tortoises: Darwin, the Galápagos, and the Fate of an Evolutionary Eden.	33
Dodd, C. K. Jr. – Women in Herpetology—A Short Biography of Isabel Hoopes.	37
Mendyk, R. W. – A Sure and Certain Cure for the Bite of a Rattlesnake: 18 th Century Folk Medicine and an Early Case of Herpetological Satire.	43
Jacobs, H. J. and Shea, G. M. – Eight weeks in Lobo Bay. The Natuurkundige Commissie on New Guinea in 1828. I. <i>Scincus</i> and <i>Centroplites</i> (Scincidae).	48
Dodd, C. K. Jr. – The International Editions of Archie Carr's Books.	82
Bauer, A. M. – Additions to the Herpetological Bibliography of Johann Gottlob Schneider and some Bibliographic Details of <i>Der Naturfreund oder Beiträge zur Schlesischen Naturgeschichte</i>	90
Honegger, R. E. and Blackburn, D. G. – The Arrival of the Dragons of our Forefathers, or Some Remarks on Early [non-English] European Encounters with Exotic Reptiles.	94